

MINISTRY OF EDUCATION

*Pamphlet No. 8*

FURTHER  
EDUCATION

2/- net

HIS MAJESTY'S STATIONERY OFFICE

# FURTHER EDUCATION

The Scope and Content of its Opportunities  
under the Education Act, 1944

MINISTRY OF EDUCATION

PAMPHLET NUMBER 8

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"The life of Man is founded on technology, science, art, and religion. All four are interconnected and issue from his total mentality."

A. N. Whitehead : *The Aims of Education*

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#### SPECIAL NOTES

To save repetition throughout this pamphlet the word *authority* is used to denote *local education authority*, unless the context otherwise requires.

Particulars of the official publications mentioned in the text can be found in Appendices IX and X.

# FURTHER EDUCATION

## I.—INTRODUCTION

### (i) OPPORTUNITIES AND DUTIES

1. IN THIS scientific and industrial age the pattern of our lives is complex. Responsibility to plan the way ahead rests, therefore, both on the individual and on the community, for without a plan there is danger that the over-intricate pattern will become ill-proportioned and out of joint. Many tend to live their lives in compartments. So much of our time is given to earning our living ; so much to our personal affairs and interests ; so much is or should be given to the affairs and interests of the community. These claims are by no means mutually exclusive, but to each of them full justice must be done. We must be efficient in our work, for upon this depends our standard of life and that of our neighbours at home and abroad. We must make constructive use of our leisure, for on the degree of maturity we achieve in our private lives depends in the last analysis the quality of our civilization. And it is certainly necessary for the health of our democratic society that some part of the increasing leisure which science has made possible should be given in one way or another to the community to which we belong. Yet however accomplished in any of these directions an individual or a community may be, there will be a falling short of excellence unless some measure of synthesis has been achieved ; unless, that is to say, there is a harmony between the different elements in the pattern. We must plan for a balanced community of well-balanced men and women.

2. To-day there is a palpable need for fully-trained citizens, and we have the opportunity to train them. The need is implicit in the responsibilities of a democratic society. The opportunity is provided by the greater leisure of a scientific age. There is here a vital challenge to our educational system. For the training and preparation appropriate to the times must and can extend far beyond the statutory school-leaving age. There are no frontiers to education, a truth that has now become a guiding principle in the public service of education.

3. The significance of the further and wider education of boys and girls and men and women is emphasized in the Education Act, 1944, which lays down that it is no longer a permissive function, but a duty of local education authorities to secure

(i) full-time and part-time education for persons over compulsory school age ;

(ii) leisure-time occupation, in such organized cultural, training and recreative activities as are suited to their requirements, for any persons over compulsory school age who are able and willing to profit by the facilities provided for that purpose.

4. The discharge of this duty will require more from authorities than the provision of a teaching service, however excellent. It involves an assessment of the educational needs of the community as a whole, and it implies a change—certainly a broadening—of the authorities' functions. It requires a close partnership between the authority and many local interests. To help to quicken the cultural, artistic, and social life of the community requires co-operation with all those in the universities, educational associations, and voluntary organizations who are striving towards that end. To develop a system of vocational preparation to meet the exacting needs of to-day requires continuous co-operation with leaders in industry and commerce.

5. The opportunities and responsibilities of authorities in the field of further education include preparation, in full-time and part-time courses, for occupations in industry, commerce, and the professions; the provision in due course of county colleges for the part-time day education of young people between 15 and 18 who are not in full-time attendance at any school; and the development of varied opportunities for young and old to extend their knowledge, to increase their skills, and to develop their interests either through the authorities' own maintained institutions, or within those many other associations where they normally meet. To serve the greatest possible number, and to exert the greatest possible influence effectively, it now becomes necessary for the authorities to survey existing provision—and since too often this is inadequate, to lay their plans for an imaginative advance in vocational education, in the provision of facilities for liberal study, and in social and recreational opportunities of all kinds.

## (ii) THE PRESENT SCENE

6. FURTHER EDUCATION has inherited traditions from its early days when the Mechanics' Institutes, the Polytechnics, University Extension Lectures, the Adult Schools, the Workers' Educational Association and the Y.M.C.A., the Trade Union and the Co-operative movements started their experimental classes and lecture courses for adults; while Wales also has its older traditions of Adult Sunday Schools, literary societies, and eisteddfodau. A great variety of institutions has since developed; so great a variety indeed that a survey however brief of their diversity is both stimulating and

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bewildering. There are large and comprehensive colleges which cater for students of all types, full-time and part-time, those studying for careers, and those following their leisure interests ; and which combine with their wide and varied instruction a vigorous corporate social life. There are colleges which provide day and evening courses related primarily to the needs of particular local industries ; engineering, for instance, or printing. There are colleges and schools of art and craft, where students may either prepare for a career or gain skill and confidence in a talent used for their own private enjoyment. There are the polytechnics and literary institutes, working men's colleges, and men's institutes which offer a many-sided programme of classes and courses, providing for many tastes and needs ; for the student who wishes to qualify for some professional examination, or who looks for guidance and practice in creative work of his own—it may be in music or in short-story writing. There are women's institutes providing day and evening classes for the interests of women in the home and beyond it. There are technical and commercial institutes, which have a vocational bias as their name implies ; but which sometimes serve also as a centre of cultural life in the neighbourhood. There are the courses of study conducted by the extra-mural departments of the universities and by the voluntary organizations acting as responsible bodies in adult education.

7. There are more recent experiments in meeting the special needs of the countryside : village colleges in Cambridgeshire which provide evening classes and activities for men and women from neighbouring villages, and the itinerant service of authorities such as Cumberland, which carries educational interest to remote places where residents cannot easily reach central meeting-points. There are the full-time tutors appointed by the universities, and by the Workers' Educational Association who devote their whole time to the development of liberal studies in the areas which they serve. There are also flourishing voluntary organizations which attract men, women, and young people of many different interests and for many different purposes. All are concerned in some measure with further education in one form or another : whether their approach be religious or social, through the arts, or through sport ; and whether they preach the pleasures and crafts of the country, or the science and art of home-making.

8. There is the youth service, pioneered by many well-established youth organizations, and brought to an important and honourable place in the educational world, as a result of a partnership between voluntary enterprise and statutory resources. The success of this partnership in creating some provision for the leisure of young people suggests many interesting possibilities for similar



co-operation when these same young people have grown into men and women and are seeking, in community centres and other institutions, an extension of the opportunities they enjoyed in the youth service. There are the experiments of the domestic front campaign. Finally, there are those powerful agencies in any system of further education, the libraries, museums, and art galleries, which are exerting an increasing influence on the life of the people.

### (iii) BUILDING THE FUTURE

9. ALL THESE different methods of education, with most of which progressive authorities are now becoming closely associated, have their own particular traditions and their own contribution to make to the design for development which the authorities are to be asked to prepare, and they must all be taken into account. One need they have in common if they are to flourish at their best—an adequate and comely setting. Up and down the country there are a few colleges for further education which are housed in worthy buildings of dignity and beauty. But these are oases in the desert ; for the most part there is a very great dearth of social and educational accommodation of every kind, from college to village hall ; and further education, whether formal or informal, full-time or part-time, has at present to contend with most unsuitable premises. It says much for the devotion of all concerned, teachers and students, youth leaders and young people, that they have so often carried on successfully in surroundings that are cheerless, uncomfortable, and very inadequately provided with either technical or social equipment. Such surroundings are the negation of all that education should stand for ; and good work can only be done at them at an extravagant cost in terms of human effort.

10. This is a time to plan boldly and comprehensively : bearing in mind the needs of the community as a whole, and the importance of achieving a balanced programme in which the competing claims of immediate utility and the wider educational adventure take their proper place. In every centre of population, there should be one or more buildings which will serve as power-houses of further education in that area—colleges of further education, whether called by that or by some other name. The form these will take must vary with the size and character of the district. There are many possible combinations of function, educational and social, that can make for an economical use of labour and materials ; and some reference will be made in a later chapter to this important aspect of planning. The first essential is, however, that the various uses to which a building will be put should be borne in mind in the original design, so that the accommodation shall be appropriate,



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functional and adaptable. The life and services of the college or institute should be visualized as clearly as possible before the architect is consulted. Above all, let us build as beautifully as we can. Where pre-fabricated units are used—as used they must be if we are to do justice to immediate needs—there is ample scope for simplicity and dignity of design and for an imaginative use of colour. It is to be hoped that there will be increasing opportunities for the artist to plan and execute the decoration of these buildings which are to be the centres of social and cultural life, so that his work may be seen and enjoyed by the people as they come and go within their daily environment.

11. The name by which an institution is known is often a matter of considerable local significance, especially where that institution is to play an intimate part in the daily life of the community. In this pamphlet the term *college of further education* is used as a generic description for a centre of educational activity; but whether it is a title which will prove acceptable and appropriate to any particular locality, it will be for that locality to decide. For our immediate purpose the term is used to include technical, commercial, and art colleges, institutes of adult education, village colleges, county colleges when these are established, and other further education establishments whatever their original bias may have been. The colleges of further education so conceived will provide the framework of further education as a whole. Within this framework will be developed a more detailed pattern which will include smaller and more intimate centres of social and educational activity: community centres, youth clubs, village halls, and the like.

### (iv) DAYTIME AND EVENING STUDY

12. IT IS characteristic of a great deal of our further education at present that it takes place in the evenings during the leisure hours of those engaged in it, and is conducted for the most part by a large body of part-time teachers and leaders, with a comparatively small nucleus of full-time staff. There is, however, already a steady and gratifying increase in the daytime instruction of young people in studies complementary to their work. Industry can no longer afford to rely on the attendance of young people at evening classes as the principal means of providing recruits with the technical training needed. This must be provided when workers are fresh and in the mind for serious study. For young workers there is also some daytime instruction in general studies which have no vocational bias; and there are employers who attach importance to a general raising of educational standards and a broadening of the interests and sympathies of young people.

## (v) COUNTY COLLEGES

13. THE DEVELOPMENT of county colleges will mean a radical change, particularly in the existing evening institute system ; but as county colleges are the subject of the Ministry's pamphlet "Youth's Opportunity", it is not proposed to make any detailed comment here on their work and organization. There will, however, be references to them in the succeeding chapters since they are so integral a part of any scheme for further education and will, as they develop, impinge on so many other activities. Dealing as they will with all young people between 15 and 18 who are not in full-time schooling, they will have many points of contact for example with the youth service, and with secondary schools providing for the same ages ; and they will surely become feeders of the senior departments of colleges of further education, and community centres. Further, the necessity of housing these colleges in the near future will be an important consideration in planning accommodation and building for future education.

14. The county college will be a focal point in the plans for further education, and a corner-stone of all part-time education for young people under 18 years of age. Its programme will be designed to stimulate and direct the interests of young people, and to secure their balanced development as individuals and citizens.

15. As part of its programme it will usually make provision for vocational interests, and transfer to the daytime a good deal of the vocational education now carried on in the evening. This will not necessarily mean a reduction in the total amount of evening studies. The more successful the colleges are in achieving their educational aims, the more certainly may we expect an increased demand for educational opportunities at all times. In part, no doubt, the demand will be for additional vocational study ; but in large measure also it will be directed to the pursuit of leisure-time interests and activities. This is obviously a development that has a considerable bearing on future planning in that it implies a re-orientation of the programme of evening activities. A new and heavy responsibility will be thrown on authorities to secure staff who may be available to take classes during the day-time. In addition to the many more full-time teachers who will be required, there will also be need for a large body of experts able and willing to give part-time assistance during the day-time, as they at present give at night. The right kind of staff for vocational education can be best obtained from among men and women engaged in commerce and industry, and therefore by the willing co-operation of those interests.

## (vi) REGIONAL CO-OPERATION

16. THE PREPARATION and carrying out of schemes of further education calls not only for consultation with various interests within the areas of individual authorities but also in some directions for co-operation on a regional basis. Close working arrangements between county and county borough authorities in regard to technical education, for example, is an obvious necessity if only to meet some of the difficulties in the rural areas. While some elementary provision is possible in villages and small towns, for the more specialized and more expensive forms of vocational education there must be a working partnership between rural areas and urban centres. It has often happened in the past that when a college, staffed and equipped for advanced technical studies, has been established in a town, it has attracted great numbers of students from far and near. This is a contingency which must be envisaged, and indeed encouraged, if the college provides highly specialized courses which meet a regional or a national need. In many cases, however, this attraction of students to a neighbouring college has led to confusion and duplication in the region concerned ; with the result that small classes, in advanced and specialized courses, have been maintained in several centres within the area, with consequent waste of teaching effort and money.

17. More or less successful efforts to solve this difficulty have been made in Yorkshire by the establishment of a Regional Council of Further Education ; and later in Lancashire, North and South Wales, and the Midlands by similar councils designed to plan the provision of facilities on a regional basis. The organization of art education on a regional plan has also been put into operation in several areas on the lines suggested by the department in 1933, when a circular was issued calling for the co-operation of local authorities with one another for the purpose. This trend towards regional co-operation which began as an effort to avoid duplication, has now received a new impetus and significance as a result of the recent recommendations of the Committee on Higher Technological Education under the chairmanship of Lord Eustace Percy. Impressed by the need for greater numbers of highly qualified technologists, this Committee has, among other things, called urgently for the establishment throughout the country of regional advisory councils representative of the universities, the authorities, the technical colleges, and industry in order to maintain an effective and continuous survey of the educational needs of the area, and to recommend sound and economical ways of meeting them. The Minister of Education has strongly endorsed this recommendation of the Percy Committee in a circular addressed to the authorities. (Circular 87, 20th February, 1946.)



18. The need for regional co-ordination in other branches of further education is rather different ; and the areas involved may not always be conterminous with those proposed for technical education. Under the 1944 Education Act it becomes a duty of authorities to consult other agencies in preparing their Schemes and programmes ; and some of the Responsible Bodies concerned with adult education—*e.g.*, university extra-mural departments, the University of Wales Council of Music, and the Workers' Educational Association—cover the areas of a number of different authorities.

19. It is desirable that there should be consultation between authorities and other bodies over the wider areas concerned, in order to ensure co-ordination of policy in such matters as, for example, the employment of full-time tutors and tutor-organizers. Co-operation in the matter of conferences and courses for tutors and leaders can be of great value, as experience in the youth service has already shown.

#### (vii) A CHALLENGING TASK

20. THE IMMEDIATE task of the authorities in regard to further education is indeed a challenging one. It is to assume leadership in the co-operative enterprise of community education. A service which will touch so wide a range of human interest and inspiration must remain flexible and adaptable ; but at the same time very great importance attaches to the breadth and boldness of our plans and the vigour with which we put them into practice as opportunity allows. This pamphlet is addressed primarily to authorities who are about to prepare their schemes of further education ; and its purpose is to offer some indication of the scope of our present opportunities, and indicate a few signposts that may help to point the way ahead. The Education Act of 1944 allows great freedom for initiative and experiment, and it is the Minister's hope that this freedom will be used fully in any direction that offers promise. The field of further education has recently been described as limitless, a rather formidable notion if interpreted too literally. There is perhaps some comfort to be drawn from the example of the old lady who, on being given her first glimpse of the ocean, remarked after reflection that it was certainly not as big as she had feared.

## II.—PREPARATION FOR WORK

### (i) GENERAL CONSIDERATIONS

21. "NOTHING is better," said Solomon, "than for a man to rejoice in his work." This might well be a motto for every technical, commercial, and art college ; for it is the happy craftsman, no

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less than the happy warrior, "who with a natural instinct to discern what knowledge can perform, is diligent to learn". The community at large, while concerned that individual workers should have the skill to enable them to rejoice in their work, has a further and more utilitarian interest in the efficacy of their training. For its standard of life and its social amenities rest on the efficiency of its individuals as workers ; and this in turn depends upon the opportunities that are open to them to prepare for their chosen vocations, and to continue to improve their qualifications and skills during their working life. Thus, to a special degree, our fortunes to-morrow depend upon the extent to which our plans for technical and commercial education are placed to-day in the forefront of our reconstruction programme, and the vigour and vision with which they are carried through.

22. Our need is twofold : to produce both skill and social leadership. It is necessary that workers should be skilled to meet the highly specialized demands of industry and commerce in a scientific age. Thus our colleges must be staffed with teachers who are familiar with current industrial and commercial methods, and equipped with machinery and apparatus that is up-to-date. In addition to possessing technical knowledge, however, men and women must also have an understanding of everyday human relationships. For industry to-day is a large-scale social organization, and success in it will depend upon qualities of personality no less than upon acquired knowledge. To a very much greater degree than in the past, therefore, it is necessary to foster a corporate life in our colleges ; and through self-governing student societies and the assignment of responsibilities, to extend the students' range of interests and their social powers.

23. In the past, the qualifications necessary for entry into occupations at various levels have for the most part been vague, and even when defined, they have not always been insisted upon. The requirements of the professions in this respect have usually been explicit, and in some occupations an agreed technical course has been accepted as a supplement to, or as a substitute for, a term of practical training or apprenticeship. In other occupations, neither apprenticeship nor instruction has been provided, and an appropriate system of training has yet to be worked out. However, in spite of a great deal of uncertainty as to how much and what kind of preparatory training is desirable for juveniles, the fact remains that where, for example, the principal of a college has worked out a full-time course of study on a broad educational basis, after consultation with the local industries concerned, students who have successfully completed such a course have little difficulty in finding suitable openings. Some students may eventually hold the more



responsible posts in industry and commerce, for which the principal preliminary qualification is a high standard of general education ; others may be engaged as workers on repetitive tasks, where the important need is for such leisure-time facilities as will compensate to some extent for the monotony of these tasks. Whatever the nature of the employment, it is of the essence of our educational planning that we should examine realistically the nature of local opportunities, and seek to provide what the human and the industrial situation appears to need.

24. The practice of recruiting the majority of young workers at the statutory school leaving age and drawing almost entirely upon the more active and intelligent among them for suitable candidates for responsible posts, leads industry to neglect those who leave school at a later age. In order to fill posts adequately at the various stages of responsibility it is clearly necessary to take on recruits at different ages, corresponding with the normal leaving ages from the various types of full-time education.

25. Courses of technical and commercial education in the past have tended to concentrate too much on the training of one or two grades of workers and on a few prominent occupations. Thus in industry there has been a tendency for courses to be directed towards the training of foremen and the supervisory grades of workers in the major trades, with little provision for the needs of industries which employ comparatively small numbers of workers and in which there is little tradition of preparatory training. Similarly, commercial education has been concerned mainly with the needs of the clerical worker and has not given full regard to other requirements. The general outlook associated with both technical and commercial education has been parochial. Many individuals and institutions have made distinguished contributions to progress, but development has been sporadic, and has varied very much according to the locality concerned. This disparity in the provision of training is a reflection of the unequal standards of quality and efficiency that exist throughout industry and commerce to-day. The links in the economic chain are by no means equally strong, and some at least show signs of rust. If the technologist and the merchant are each to perform their respective functions with competence we must provide a well-balanced general system of education related to the comprehensive needs of industry and commerce.

## (ii) PRESENT ARRANGEMENTS

26. THE FOLLOWING summary shows the existing arrangements, other than at the universities, for providing vocational education.

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The figures quoted refer to the period immediately before the war, but the summary applies fairly enough to the present position.

(i) *Pre-employment courses.* In 1938, there were 230 junior technical and commercial schools in England and Wales with 29,000 pupils, together with 41 junior art departments with 2,480 students. During the war years the number of these schools was doubled. They have been mainly concerned with preparation for entrance to the engineering and building industries, commercial occupations, the needle trades, domestic employment, and artistic trades ; although between them they have assisted entry into a considerable variety of other occupations also. In addition, a number of secondary grammar schools have introduced some instruction in vocational subjects. There were also about 2,000 junior students attending technical day classes of a vocational character, and 1,300 junior students in art schools where there are no separately organized junior art departments.

(ii) *Full-time Senior Courses.* There were in 1938 over 11,600 students in these courses in technical and commercial colleges, and some 4,700 in art schools. These courses are related to a large number of widely ranging occupations, and there is wide variation both in the ages of the students and in their previous educational attainments. These courses have flourished especially in the larger towns.

The duration of full-time courses varies from one to four years. The most common are those in science, commercial subjects, and engineering ; although there are successful courses in many other technical subjects in different parts of the country. Some of these courses, often referred to as *Sandwich* courses, involve the full-time attendance of students for part of the year only, usually six months, the rest of the year being spent in industry or in commerce.

(iii) *Part-time Day Courses* in technical and commercial colleges were attended in 1937-38 by 34,000 students. In addition, some of the day continuation schools supported or assisted from public funds provided courses of a vocational character, but for the most part the instruction provided for the 20,000 students in attendance was general rather than vocational ; and the number of hours per week during which students were in attendance varied a good deal, although one day a week was common. Moreover, in 1937-38 there were 61,000 students attending part-time, either day or evening, in art schools and art classes. Voluntary part-time day attendance increased greatly during the war years—from 46,000 in 1938 to nearly 90,000 in 1945—and is still increasing rapidly.

(iv) *Part-time Evening Classes* at colleges and evening institutes represented the great bulk of vocational instruction in this country, and catered for a great many needs and interests in both vocational and general education. In spite of the obvious disadvantages of evening work, nearly one and one-quarter million students were registered in 1938.

27. The striking feature of this provision is the dominance of evening classes. The truth is that our technical education is for the most part offered at the end of the day, when students are tired ; and is more often than not housed in premises that are ill-adapted and ill-equipped for the purpose. The use of primary schools for evening classes, for example, is common ; and there can hardly be a more ill-assorted box-and-cox partnership than this. The replacement of a great deal of evening class work by part-time study during the day is long overdue, especially for young people.

28. There is wide variation in the range of technical education provided in different parts of the country. Naturally enough, the larger centres of population are in advance of the majority of the small towns ; for technical education inevitably tends to concentrate in the urban areas, and on the more obvious industries and occupations. A policy of close and continuous consultation with industry having been generally lacking, provision is largely fortuitous ; and in some industries it does not exist at all. Lack of provision is not always the fault of the local education authority ; generally speaking, an industry gets the education it deserves.

29. Hitherto the colleges have devoted the greatest part of their attention to students aiming at the middle or supervisory grades in industry. The practical education of the lower grades of industrial workers has only been attempted to a small extent. For one thing, it is difficult to build even a light structure of technical or scientific training without a better foundation of general education than most workers at present possess. For another, detailed craft training has been regarded in many industries as the duty of the employer and not of the public service of education. With the development of specialized manufacturing methods, many aspects of craft training have become rather the responsibility of the technical colleges than of industry. This orientation is worthy of every encouragement, provided it results from close and continuous co-operation with industry. Much excellent work has already been done at colleges in the supplementary training of skilled craftsmen. An extension of the work involving the provision of well-equipped workshops which the craftsman can regard as his experimental laboratory is overdue.

30. Provision for post-graduate study or for research is very

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limited, although a small number of technical colleges have carried on such work, often under deplorable conditions. Refresher courses for persons of some years' experience are largely confined to evening lectures, and are sometimes supplemented by practical work. Studies for university and specialized qualifications are pursued in this way under great difficulties, both for student and teacher ; and these part-time studies demand much more effort than is called for from the average undergraduate. Only the hardiest in mind and body stay the course.

31. To sum up : the outlook for the young student anxious to pursue a course of training related to a chosen vocation has been full of difficulty. If he left school at 14, the chances of his returning to an educational institution to take a full-time course were in practice remote. Normally he had to attend a junior evening institute concurrently with the business of adjusting himself to working life, to obtain the general foundations necessary for more serious vocational studies. Only in comparatively rare instances was he released for a few hours weekly from his occupation to attend a day continuation school. At the age of 16 his prospects in the pursuit of learning were a little brighter, especially if he lived in a large town. At this stage vocational courses proper really began, and there was better provision for part-time courses than at the younger stages. Full-time courses in the college were also available, but unhappily there were few scholarships to encourage his attending them. Any young man or young woman who is suitably qualified educationally can now start a national certificate course, a degree course, preparation for a professional qualification, or an advanced art or craft course ; but in any event studies will be pursued in all probability after working hours. If the student achieves immediate ambitions and then seeks opportunities for post-graduate study or for research on a part-time basis, he is again halted ; for outside London and a few large towns, there is no place where he can engage in such activities. To evolve an adequate remedy for this state of affairs will require the good will and encouragement of the leaders of our industrial and commercial life, and courageous and comprehensive action throughout the public service of education.

### (iii) LOOKING AHEAD

32. SCHEMES OF vocational education must be planned with two major considerations in mind. The first is that provision should be sufficiently comprehensive to meet the needs of industrial and commercial workers of all grades ; and the second is that close co-operation between local authorities, other educational bodies, and industry and commerce is essential, in order to make the best use of available resources. The existing arrangements summarized



in paragraphs 26-31 will continue to be relevant for the most part ; but it will be necessary to consider them afresh in view of the forthcoming introduction of county colleges, the likely increase in what are now called secondary technical schools, the greater interest taken by industry and commerce in technical education, and the rapid changes in industrial methods which take place nowadays and demand a corresponding review of educational methods.

33. In the following paragraphs some general considerations are advanced which may be of assistance when plans are being prepared. In addition, in Appendix I, an attempt has been made to analyse the requirements of certain industries and occupations, including agriculture and horticulture, and to show how far educational provision has catered for the various grades of workers employed in them. What has been achieved in the past has been insufficient and not altogether effective ; although there has at least been a realistic attempt to face the shortcomings and obstacles.

#### *Local Colleges of Further Education*

34. Local colleges will be required to meet a good many of the local needs for further education whether vocational or general, full-time or part-time. Normally they will accommodate all county college activities except where the number of students requiring vocational education is small or the equipment abnormally expensive. Such specialized provision will be made at a central or regional college.

35. The contribution of individual firms to the training of young craftsmen and technicians will vary considerably. In preparing a scheme for any one industry and working out the kind of instruction suitable for each grade, agreement will have to be reached as to what training is to take place in the works and what in the colleges. The relation between "works schools" and county colleges has been developed in paragraphs 39-40 of "Youth's Opportunity".

36. The present rapid increase in the voluntary attendance of young workers for day-time study, and the eventual statutory requirement of attendance at county colleges, will doubtless result in a decline in the numbers of young people attending evening classes for vocational instruction. While this development is obviously in the right direction, it is unwise to generalize too freely about it, for experience suggests that day-time instruction often stimulates an increased interest in vocational study in the evenings. Provision in the evenings will still be required in any case for older students on an increasing scale ; and in fact the majority of students



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at present engaged in vocational courses are over 18 years of age. An improvement in our educational service as a whole should evoke a widespread demand for many kinds of general education, often unrelated to occupation ; and our colleges will fall short of their opportunities if they fail to meet this demand. Once again, if local colleges of further education, whatever their bias may be, are to realize their potentialities they should be conceived and conducted as places where men and women can learn not only to work well, but also to live more fully.

37. Provision of elementary vocational instruction in the past has suffered, not only from poor premises, but also from inadequate plant and equipment. The establishment of county colleges, with the increased accommodation which will follow, should make it much less necessary to use secondary school premises for further education, except where these have been specially designed or where the existing amenities are adequate. Certainly primary school premises should no longer be used if this can possibly be avoided.

### *Position of Secondary Technical Schools*

38. The position of the junior technical, commercial, and art schools has been changed as a result of the 1944 Education Act. The great majority of these schools have an age of entry well below the statutory school-leaving age, and they now take their place as secondary schools. An imaginative expansion of secondary education, built around specific interests such as science, engineering, commerce, or art, has incalculable possibilities as a means not only of invigorating our industrial and commercial life, but also of laying the foundations of a liberal education for large numbers of our young people, who may not invariably be able to respond readily to the kind of education provided in grammar schools.

39. The trade schools, with a curriculum based on the knowledge of single trades or crafts, do not lend themselves so readily to conversion into secondary schools ; and their future therefore calls for some local consideration. At present their aim is towards a vocational objective that is too narrow to reconcile with the broader purposes of secondary education, or indeed with the real educational needs of children of 13 or 14, the usual age of entry into these schools.

40. Should the curricula of the trade schools, then, be widened so that they may become secondary schools ; or should their age of admission be raised so that they may come within the orbit of the college of further education ? At present there is little evidence of a demand from industry or from commerce which justifies adding

greatly to the number of existing full-time vocational courses which young people attend immediately after leaving school. Where such a demand for specialized courses exists, authorities would be well advised in the first place to consult the leaders of the industry concerned, not only to estimate the need but also to ensure that the students are placed in employment at the end of their course.

41. The senior full-time courses conducted in the different colleges for further education are also affected in some degree by the 1944 Education Act. These are courses devised with specific objectives. Some—for example, one-year courses in commerce—provide technical competence in certain skills. Others have a different objective, for example, to meet the requirements of such professional examinations as those in pharmacy or in optics; or to give a broad technical or professional background for a particular industry or profession, it may be architecture, building, engineering, accountancy, or hotel management. Clearly there will be a close parallel between some of these senior courses and sixth-form courses in secondary schools. The difference may often be one of emphasis. In the secondary school it is important that the subject and the method of teaching it should be appropriate to the purpose of advanced secondary education. In the course at the college, the primary concern will no doubt be an immediate preparation for the vocation in view. Thus any of the courses quoted above have some of the ingredients in them of sixth-form work in a secondary school, provided the balance of the curriculum is right.

42. What are the factors which should decide whether particular professional, commercial, or technical courses are more appropriately provided in colleges or in the sixth forms of secondary schools? Among them, obviously, are the methods and conditions of recruitment to the industry or profession for which the course is intended to prepare, the extent of the demand for trained workers, the need for highly specialized equipment which may only be justified at one centre in an area, and the availability of specialist teaching staff. In certain kinds of employment and, indeed, in certain areas, there is a readiness to recruit staff at the ages of 18 or 19. Sometimes, as in the case of banking or accountancy, the essential requirement on entry is a good general education; in other cases, such as the building industry, young men of 18 or so are required, provided they have received some preliminary vocational training, whether in an advanced course in a secondary technical school or in a two or three years' senior course in a technical college. There are also many openings in business and commerce for which a full-time vocational course of two or three years beyond the age of 16 is a suitable preparation. The engineering industry, on the other hand, prefers to recruit either at the age of 16 for apprentice-

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ship, or at 21 or 22 following a course of university standard ; but even here there is a tradition in some areas to take in a small number of young people of 18 years of age with or without pre-vocational training.

43. These considerations emphasize the importance of a close study of local professional and industrial needs, and of making provision to serve the best interests of the young people. In some areas and in some secondary technical schools, sixth-form courses of a vocational nature may be a sound development : in others it may be preferable both on educational and economic grounds to transfer pupils to a senior course in the technical college or elsewhere. What is important is that at the end of the course the young people should be able to enter the professions or industry without difficulty : and this will follow if the courses provided meet their needs in the light of professional and industrial requirements.

### *Governing Bodies of Colleges*

44. The constitutions and functions of governing bodies in colleges of further education vary considerably. There are colleges in which the majority of the governors are drawn from industry and commerce, and others in which they are mainly representative of the authority itself. Some governing bodies have executive, others only advisory powers ; but it is important that they should be representative of the various vocational, educational, and social interests in the community with which the students are identified. In this way the wider perspectives can always be envisaged when planning particular studies or activities. Thus in addition to representatives of the authority, places should be reserved for leaders in industry and commerce—both employers and workers—and in the social life of the community, including, for example, the youth service, and men and women associated with individual institutions with which the college has a particularly close connection. The aim should be to secure a governing body which will reflect the interest and enjoy the support of the local community as a whole, and at the same time comprise in itself a body of men and women ready to give time and thought to creating a vital, distinctive and independent college tradition.

45. The members of governing bodies must be able to keep in the closest touch with current technological developments so that their colleges are always ready to make a proper contribution not only to local but, so far as may be, to regional needs. In this way, the confidence and support on the one hand of employers and on the other of potential craftsmen, technicians, designers, and professional workers will be secured. Moreover, there are

one or two general principles involved that it is desirable to emphasize if the colleges are to grow to active stature and influence. They must have the greatest possible measure of academic freedom ; and both governing bodies and principals must be allowed full scope to impress upon them those qualities of personality and atmosphere characteristic of institutions which are a prime interest, and not merely an incidental responsibility, of those concerned with them. Our colleges and schools of art, for example, should act at all times as the aesthetic conscience of their local communities, ready to challenge the philistines wherever they raise their heads. This is clearly a function of a college of art, but it requires freedom and independence as well as tact to exercise it. The working out of the best arrangements for ensuring a real measure of freedom for establishments maintained by the authorities is a matter demanding the most patient and sympathetic thought. (See Circular 98 of 10th April, 1946.)

#### *Regional Colleges of Further Education*

46. The great majority of vocational students will receive their training in local colleges ; but for reasons of efficiency and economy there must be in each region one or more central institutions in which work of a more specialized type can be developed in the interests of the region as a whole. A number of such colleges are in being as a result of the initiative of progressive authorities, the support of local industry, or the goodwill of private benefactors. Often enough, however, their regional and specialized significance has developed fortuitously rather than by design.

47. The main concern of the regional colleges will be with courses of study of graduate or post-graduate standard, although in many instances there may also be a demand for less advanced work for other students. Transport facilities will usually govern the size of the area which these colleges will attempt to serve ; for although residential provision will be arranged in the sparsely populated areas, the majority of students engaged in both full-time and part-time studies at regional colleges will travel daily to and from home.

48. The regional colleges will attempt to provide those courses which demand highly qualified teachers and the more expensive and specialised equipment for which there is only a limited need throughout the region. In London and other urban areas with a large population, a number of regional colleges, each with its particular emphasis, will be required. It may be convenient, for example, to have separate regional colleges for technology, commerce, or art. Whether these colleges are housed in separate buildings or not, it is essential that there should be close under-



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standing between them and with all other further educational establishments in the region, including the universities.

49. The students attending regional colleges will do so—more often than not—at considerable personal inconvenience, especially in regard to travelling. Successful regional organization, therefore, does not necessarily imply that all advanced students should be brought to the regional college. Often in an industrial region there will be a local demand for a particular industrial or commercial course, sufficient to warrant the advanced work being conducted either wholly or in part at a local college. Moreover, where a substantial class of students can be formed in a remote locality, and where the subject-matter of the course lends itself to extra-mural study, it is easier for one teacher to travel than for a whole class to do so.

### *Regional Councils of Further Education*

50. Balanced development of local and regional colleges on the lines above indicated is pre-eminently a task for the regional councils of further education representing the authorities, the technical colleges, universities, and leaders of industries, for the establishment of which the Minister in Circular 87 made an urgent plea to authorities in February, 1946. A network of such councils performing a service of survey, review, and advice to the whole country, cannot fail to be an important influence in the national life.

51. It will not be enough, however, for the regional councils to think only in terms of administrative efficiency and economy, and to regard their sole function as the rather negative one of avoiding duplication of effort. The intention is that they should engage in positive action designed to bring opportunity for further education within the reach of all who can profit by it, and to ensure, moreover, that it is brought to their notice. Not least among the tasks of the councils will be that of providing clear and comprehensive guidance, to show the courses available and for whom they are designed. Up-to-date information should be widely distributed throughout the region: *e.g.*, at educational and administrative centres, employment exchanges, post offices, factories, offices, and public libraries, by means of press advertisements and hand-books, and indeed wherever it is likely to meet the eyes of potential students.

52. A particular problem that might well engage the early attention of regional councils is that of providing for the educational needs of people who, because they spend long periods away from home—as in the merchant service or in contracting industries—



or are employed in remote rural areas or in work where hours are irregular or on a shift basis, cannot pursue normal part-time studies at local colleges. There are two main solutions of these difficulties. One is to arrange residential courses at colleges. The possibility of making provision for residential students has already been envisaged in regard to county colleges in rural areas, and the arrangements involved here have a good deal in common. Corporate life in hostels is better than living in lodgings. The other solution is to organize correspondence courses. Such courses, even when accompanied by a certain amount of tutorial work, are clearly not so desirable educationally as normal instruction. On the other hand, they have been the source of very real educational profit, for example, to men in the Services, in the Merchant Navy, and to patients in hospitals. Why should others who equally cannot engage in normal studies be debarred from education? There may well be experiments here that selected colleges should carry out at the suggestion of the regional councils. The staff handling correspondence must of course be relieved, to some extent, of normal teaching duties, but they must retain some contact with normal teaching; and the correspondence courses should be combined with tutorial or practical work as often as is possible. Correspondence courses might well be combined with short periods of residence at certain colleges. The Minister is prepared to consider the future possibilities of correspondence courses, and ready to approve experimental courses on the lines indicated above.

#### (iv) CO-OPERATION WITH INDUSTRY, COMMERCE, AND THE PROFESSIONS

53. CONSULTATION BETWEEN educationists and industrialists about the training appropriate to a particular kind of employment ought to be close and continuous, and should relate equally to the needs of those engaged on repetitive work and of those engaged on advanced research. At present this co-operation is by no means constant or comprehensive. Adequate arrangements for ensuring that educational and industrial planning go forward together require co-operation in three ways:

(1) Nationally, between the Ministry of Education and other government departments, authorities, and the representatives of particular industries or groups of industries, both employers and trade unions;

(2) Regionally, between the regional councils of further education and the regional or district organizations of an industry or through industrial advisory committees of the regional councils;

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(3) Locally, between the colleges of further education themselves and firms in the areas which they serve, by means of joint advisory committees, or through sub-committees of the governing bodies of the colleges.

In some areas arrangements of this kind have been in existence for some years and have functioned effectively. Too often, however, there has been no such machinery for consultation ; so that methods of instruction and types of equipment may be out-of-date, and the numbers trained may be unrelated to need. Only if employers, workers, and educationists confer together constantly can we at the same time pursue a policy of full employment, and yet avoid putting square pegs into round holes.

54. On the national level, the Ministry of Education is already associated with many sections of industry and commerce, either intermittently as questions arise, or through regular meetings ; and locally, H.M. Inspectors are in constant touch with leaders of trade and industry as well as with the authorities and their colleges. Existing arrangements whereby certificates of proficiency are awarded in a number of technical and commercial subjects owe their effectiveness to the association of the Ministry with industry and commerce on various national and regional committees. In particular, the schemes for national certificates which are discussed in more detail in paragraphs 69 and 70, and the rather similar schemes which obtain, for example, in the gas and laundry industries, have involved close consultation between the Ministry and those industries. The advisory committees of the City and Guilds of London Institute again, include representatives of the industries concerned, of the teachers, of the authorities, and of the Ministry ; thus forming an effective national link between these various interests, and ensuring that the examinations of the Institute are related to current needs.

55. The function of advisory committees is to enable educational planning on the one hand, and industrial, commercial, and professional needs on the other to be integrated. From the educational side will come the arrangements for specialized instruction, the indication of ancillary subjects designed to make the main studies intelligible, the supervision of inquiries and research. It will be for the representatives of industry to express the need for particular types of training, to provide the data for forecasting economic developments, to encourage research, to give help in staffing the colleges, and to arrange the attendance of students from work. It is obvious that advisory committees will only function effectively so long as constant vigilance is exercised to ensure that no new development is allowed to pass unheeded.

Surveys of educational and economic requirements should, therefore, be a regular feature of their work.

56. A periodic survey should seek to review local economic trends and the likely demand for different categories of workers, *e.g.*, administrators and managers ; research, design, and development staff ; technical assistants, foremen, draughtsmen and craftsmen. These grades are common to industrial occupations ; what are less uniform are the types of education and training looked for in new recruits to the different grades. Some of the higher staff will be trained in the universities. For the rest, one out of four types of training is normally required :—

- (i) A technological course of degree—or of higher national certificate or diploma—standard ;
- (ii) an ordinary national certificate or university intermediate degree course ;
- (iii) courses for the training of the various grades of supervisory staffs ;
- (iv) craft courses designed to meet the requirements of the City and Guilds and similar examinations.

Many of the higher qualifications for which employers look in selecting staffs are associated with one or other of the professional organizations, as in the case of the national certificates ; and it is clearly important that all those responsible for vocational education should establish strong links with the recognized professional bodies.

57. The importance of the co-operation of industry in the staffing of colleges was mentioned in paragraph 55. In the past the concentration of technical instruction in evening classes has meant that the majority of the teachers have been working on a part-time basis ; and many have been engaged in industry as specialists during the day. In the future, however, especially in view of the prospect of much more extensive attendance of young people from industry for classes during the day, there will be need for a great increase in the number of full-time teachers of technical subjects. Unless special arrangements are made, these teachers will not have the advantage of the regular contact with industry which was possible for those who were teaching part-time.

58. It is clearly of little use engaging skilled teachers in colleges if they are not given the opportunity of keeping abreast of the latest developments. One way of providing for this is for full-time teachers to have an opportunity to return to industry for spells in order to become familiar with the latest improvements in method. Another is for industry to agree to second its specialists for periods



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of full-time teaching. Both these arrangements will depend on the goodwill of industrial leaders, and their close interest in the technical colleges. In order to encourage the periodic return of teachers to industry, the Minister has made arrangements whereby a teacher may be released up to a period of six months for industrial or commercial experience, without loss of salary position and pension rights. In addition, a special grant of six months' leave without pay is now permissible. In this way the Minister hopes to secure a flow of constantly refreshed and up-to-date teachers covering the whole range of vocational education.

### (v) THE IMPORTANCE OF GOOD DESIGN

59. THERE IS no field in which close working between educationists and industrialists may be more productive of the general good than that which is now developing increasingly round the colleges and schools of art. The Ministry has recently published a pamphlet on Art Education ; and it is not therefore proposed to do more here than to make a brief reference to the subject, and give point to the plea made in the foregoing paragraphs. Far too little attention has been paid in this country to the design of manufactured articles. The manufacturer often enough has been content to make the right thing badly ; the seller to push the article as delivered ; while the purchaser—discriminating or otherwise—has had to take that or nothing.

60. Simple, well-proportioned, finely-designed goods need cost no more to produce, generally speaking, than those in which these qualities are manifestly lacking. The industrial world might have done much more to attract the best artistic talent by good pay and prospects ; the art schools have not always been out to meet the industrialists more than half-way ; and to the public at large, form and colour are of less consequence than the bloom or gloss that is applied afterwards from time to time like a cosmetic. The real measure of the value and significance of a school of art will be seen in the standard of taste of the manufacturers and craftsmen and of the producers and consumers who live in its environment. Conversely, both manufacturers and consumers must believe in the need for giving encouragement to the creation of a live college of art before it can be expected to flourish in their midst. To realize their potentialities, the staffs of art schools must work in the closest association with their colleagues in the technical colleges and with manufacturers large and small ; so that their courses are related to local needs, and the studies of those who attend them find expression in the products of industry. Equally, with greater confidence than in



the past, they must seek their rightful place as the positive force making for a quickened sense of artistic awareness in the local community.

61. The establishment recently by the Board of Trade of the Council for Industrial Design—for the improvement of the design of manufactured goods (*see* Appendix I, NOTE)—is itself an indication of the public interest in this matter and the sense of urgency which prevails regarding it. The Minister looks forward to useful collaboration with the Council and between the Council and authorities.

#### (vi) NATIONAL COLLEGES

62. THERE ARE certain industries of great importance in which the total number of workers employed is comparatively small ; the watch-and-clock industry is an example. The industry is widely dispersed, and in no one area are the workers sufficiently numerous to warrant provision for that area alone. To meet the needs of industries such as these, national colleges are being set up. The colleges will of course be located in areas where the particular industry is well established, though students will be drawn from far and near. Wherever possible, the national colleges will be housed within existing colleges of further education ; but each will be under a separately constituted governing body, and will be nationally financed. Since particular industries will profit by the establishment of these national colleges, their full co-operation in recruiting and releasing students and teachers, and in sharing costs is essential ; and there is every promise that this co-operation will be generously forthcoming. While the Ministry of Education, rather than the authorities, must clearly accept responsibility for these national colleges, it will remain a part of the duty of the authorities to be aware of them and to assist likely students to attend them. Several industries are at present considering whether they should seek for the establishment of national colleges to meet their several needs.

#### (vii) RESEARCH

63. SIDE BY side with plans for ensuring that young people in industry receive the best possible education, comes the question of research and the part it should play in the academic life of colleges of further education. This was the subject of Circular 94 issued in April, 1946.

64. The case in favour of a development of work of this kind is, of course, unassailable. The best teaching flourishes in an atmosphere of progressive understanding of the subject taught. Industrial development depends on the application to manufacture of

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new ideas and processes disclosed by the research worker. For many years one of the main functions of the universities has been the promotion of research ; and it must be admitted as a defect of the public education service in the past that so little encouragement has been given to research in technical colleges. Taking the country as a whole, the contribution in this field from the colleges is disproportionately small compared with their number and importance. Few things could do more to raise them to equal partnership with the universities than that they should be recognised as centres of original research work of the highest quality.

65. Granted this need, it is necessary to consider what is the most appropriate form of research for technical colleges. It is of course wrong to restrict freedom, for without freedom research is sterile. Much also depends on the character and interests of the research worker. But broadly, it may be suggested that for the technical college, applied rather than pure research is the more suitable field. In this context, applied research includes work undertaken in association with industry or commerce and of direct value to them, such, for example, as development work, or statistical method ; but not merely routine testing. Applied research of this kind will bring the college and its teaching staff into close association with workers in industry, because it will be based upon a common enterprise capable of substantial result. Nor should the facilities for research be limited to members of the college staff. The hospitality of the college for this purpose should be available to all who have a serious bent towards research or invention.

66. The encouragement of research is nevertheless not a matter to be developed without careful thought. Not all are temperamentally or intellectually capable of undertaking the work ; and there will be questions of the nature of the work on which research is required, the payment of fees, and the publication of results. None the less, once a man has proved himself fit for this work he should be given all possible and practical help by means of leave with pay under approved arrangements, by enabling him to get skilled help and special equipment, and by directing him to possible sources—*e.g.* the Department of Scientific and Industrial Research—for research grants.

### (viii) CERTIFICATES AND DIPLOMAS

67. EXAMINATIONS ARE not a final test of quality and attainment. While it is certainly convenient to employers to have some written evidence of intellectual achievement, examinations and certificates should not loom too large in the eyes of the student, of the teacher, or of the prospective employer. This is particularly so in the case

of the part-time student—the evening student especially—for the limited time at his disposal does not permit him to explore beyond a prescribed syllabus. The aim must be to secure more time and opportunity for the student, especially by means of day-time release ; so that he and his teachers may do justice to a wider curriculum. There is no way, short of prodigious effort, whereby the evening student can achieve the same standard as his fellows who are enabled to study in the day-time. The standards of examinations cannot be varied according to the circumstances of the students ; but assessment of ability as represented by paper qualifications should be tempered by appreciation of the conditions under which these were won.

68. A paper qualification, if it is to have any value in this age of mobility, must have national if not international currency. University degrees are favoured partly for this reason ; and in the absence of a relationship between the technical colleges and the universities in their areas, there has been a general tendency to use as objectives the external degrees of the University of London. These are available only in a few technological subjects ; and they have the disadvantage of all purely external examinations that they encourage teaching of too academic a character. A solution to this difficulty lies in a closer relationship between the colleges of further education and neighbouring universities, a matter which is discussed in the report of the Percy Committee on Higher Technological Education.

69. The national certificates and diplomas awarded by the Ministry of Education in conjunction with professional bodies have now been in existence for a number of years, and have made a solid contribution to advance in standards of teaching. Technical colleges draw up the syllabus suited to the needs of local industries, and these are submitted for the joint approval of the Ministry and the professional organization concerned. Candidates who satisfactorily complete a full-time course receive a diploma, and in the case of a part-time course, a certificate.

70. The joint control of these certificates ensures appropriate educational and professional standards, and they are accepted by a number of professional institutions as part qualification for corporate membership. Arrangements similar in outline although not in detail to those governing the award of the national certificates apply to qualifications in other industries ; while an example from the world of commerce is the scheme operated by the Institute of Bankers in association with selected schools and colleges. The City and Guilds of London Institute award certificates which cover a wide range of technological subjects and are very



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widely accepted in industry. Although to some extent external to the colleges, the examinations are under the control of advisory committees on which teachers of the subject, the industry or craft concerned, the authorities, and the Ministry of Education are all represented. A similar arrangement which has national acceptance but with special application to Commerce is sponsored by certain bodies of which the Royal Society of Arts and the London Chamber of Commerce are the best known. Here again the close association of the interested parties is an important feature.

71. A variety of certificates which have a wide currency are awarded by the several regional examining unions. These courses and syllabuses are drafted by committees on which again teachers of the subject, authorities, industry, and the Ministry of Education are represented. Many of these courses are linked up with national certificate schemes ; and there is also an association between the regional unions and the City and Guilds of London Institute through mutual representation on advisory committees.

72. In all these courses, leading as they do to definite qualifications, the conditions of entry are prescribed, so that only students who are likely to profit by the instruction given in the course are encouraged to enrol. These conditions are not rigidly defined, but evidence of intellectual attainment of a suitable kind and standard is required before a student may embark on these serious studies.

### (ix) SCHOLARSHIPS AND MAINTENANCE GRANTS

73. THE MOST ambitious schemes of development of technical and commercial education will fail in their objectives unless full advantage of the facilities can be taken by able students irrespective of the circumstances of their parents. Although the regulations for scholarships and other benefits have been explained in detail in Circular 26 (13th March, 1945) as modified by Circular 104 (16th May, 1946), it may be helpful here to summarize the position briefly. The Minister is anxious to encourage a comprehensive system of scholarships and maintenance allowances tenable not only at universities, but also at " any place of further education " ; and for the purpose of the regulations, a place of further education is defined as including an institution of technology, commerce, art or music and an institution providing full-time courses of education for older students. The selection of students for awards of this kind is left to the discretion of local education authorities, but the general criterion is that they should show promise of completing the course with credit. The value of the awards is also left to the discretion of the authorities ; but the Minister has advised authorities to give



awards which will, according to the student's need, cover the cost of training, and to assess their awards in relation to a liberal income scale. The intention is to offer a safeguard against possible withdrawal from a course because of the out-of-pocket expenses involved.

### III.—LEARNING FOR LEISURE

#### (i) GENERAL CONSIDERATIONS

74. THE PRECEDING chapter has related to that part of further education which has in a special degree a vocational objective. The following paragraphs are concerned with those other aspects referred to in the Education Act of 1944 as "leisure-time occupations in such organized cultural training and recreative activities as are suited to their requirements for any persons over compulsory school age who are able and willing to profit by the facilities provided for that purpose." Here is the opportunity for a wide extension of the educational and social resources making for individual happiness and for a civilized community. If a great extension of technical education is essential to the well-being of our economic life, so equally is a wide development of general adult education necessary if we are—as individuals or as a nation—to deal competently and democratically with the complex political questions of our time, or to develop those interests and activities which go to the making of a full and satisfying life.

75. A sense of urgency for educational reconstruction arises in part from an increased interest in education as it affects our young people ; but also and perhaps especially, from a desire for greater understanding of the potentialities of man's invention and their impact on man's affairs, and a belief that, given understanding, the human spirit can rise to the challenge of events.

#### *The Necessity for Co-operative Effort*

76. The first need is co-operative action by authorities, universities, and voluntary organizations of every kind. We need generosity and trust between the teaching bodies themselves, so that we may use our teaching resources to the best advantage. We need a close and confident relationship between those teaching bodies, and the organizations, whether for adults or for young people, which provide an environment wherein things of the mind and spirit can flourish. There is an opportunity to advance, if we march together.

77. Further education is a community effort in which the authority must play the leading part. Progress demands, it is true, an expansion of the authorities' own activities ; but it means also an

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extension of their influence through the services of staff, the hospitality of their premises, grants in aid and last, but not least, the qualities of inspiration and encouragement which can transform the least likely village club into a place of enlightenment and culture. The success of such a partnership will depend, however, not only upon the initiative of the authority but also on the quality of local response. The assurance of the goodwill and support of the great diversity of local associations can help immensely, especially at a time like the present when authorities have so much on their hands. Constructive criticisms and suggestions, and a readiness to regard the statutory authority's achievements with pride because they are shared, are of the essence of the partnership.

### *The Need for an Organizing Staff for Leisure-time Education*

78. The second immediate need is that the authority's organizing staff should include officers whose main work is to give close attention to the development of leisure-time education of the kind envisaged in this chapter. The youth service has prospered most where there has been stimulating work by the youth organizers employed by the authorities. There is a pressing need now for officers to be similarly engaged in surveying the adult field and pointing the way toward new opportunities; it may be for formal class work, or for discussion groups, or the need for a playing-field or for a community centre. Expansion of these organizing staffs, and the arrangement or re-arrangement of the authority's committees, must of course be made with all the further education responsibilities in mind; and these will vary in different areas. What it is sought to emphasize here is the gain to this work that must follow from the appointment of well-chosen officers, supported by keen committees, who could give their whole attention to the development of adult education.

### *Accommodation Difficulties*

79. The third need is for adequate and suitable accommodation: and here it will be necessary to pursue a short-term as well as a long-term policy. Some suggestions regarding long-term planning are made in a separate chapter in this pamphlet. A survey is also needed, however, to consider what can be done here and now to improve the environment in which the leisure of young people and their elders is spent. Adult education classes, make-do-and-mend groups, youth clubs, too often meet in most unsuitable places. Something could be done with goodwill to press into use for immediate and temporary service rooms in schools, libraries, and adapted premises, and to furnish these suitably for adults. Moreover, there are localities in which there is no meeting-place that

could provide, for example, the nucleus of a community centre. The question then to be settled is whether to await the time when substantial building becomes possible again, or to erect prefabricated huts forthwith. This is a real dilemma. On the one hand there are those local community associations who have cherished plans for ambitious buildings. Some of them will decide to wait until these plans can be realised in their entirety. On the other hand there are communities where it will be felt that a meeting place, however simple, is an immediate essential to bring to life a sense of community living which can be shared by men and women returning from the Forces with those who have sustained the life of the community at home. With a right use of colour and a little imagination, it is argued, the simplest building can be made attractive, certainly inside.

80. This is a matter for local decision. The Minister, at any rate, will encourage any reasonable steps towards providing a temporary home and a focus for adult education, either by adapting and decorating existing buildings or by the use of prefabricated structures. Much must depend on the local situation with regard to labour and materials. What is certain is that any improvement in the environment of adult education at this time will reap an immediate reward.

### *Publicity*

81. A fourth need that can be met immediately is for authorities to make available as widely as possible comprehensive information, in leaflet or handbook form, and by means of posters and advertisements, or in other ways, about educational facilities and services that are available within their area. A service of information of this kind, dealing with the whole field of further education, in which the authority and local associations of all kinds shared the responsibility of providing and distributing the information, would in itself be a joint enterprise of value.

### (ii) THE PRESENT OPPORTUNITY

82. IF WE do all that we might, it seems possible that education will become something to be taken for granted by adults and young people ; a normal and natural requirement of our democratic society. For one thing, world events that affect us intimately have a habit of intruding upon the consciousness of the citizen and demanding some kind of considered reaction. For another, there is a growing realization that leisure is not so many non-working hours to be got through as best may be ; but a possession to be wisely used in the development of resources within oneself, and to be shared with other people.

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### *Lessons to be learned from war-time experience*

83. The conditions brought about by the war have emphasized these tendencies ; and both in civilian life and in the Forces men and women have been quick to extemporize new ways for extending and reviving interests and knowledge. One of the most striking and gratifying features of education during the War has been the persistence with which adult classes pursued their course in spite of blackouts, blitzes, and overtime. After an initial check in the early days of 1939-40, they not only recovered their pre-war strength but by 1945 had actually exceeded in numbers the level of 1939. Through the influence especially of the B.B.C. and the Arts Council of Great Britain many have for the first time tasted the qualities of good drama or music, or been introduced to good pictures. Appetites have been created that will continue to grow if the food is made available. More widely still, in the Forces and Civil Defence Services men and women, partly under compulsion and partly through voluntary initiative, and with considerable help from authorities, have made contact with a wide variety of interests that can properly be described as educational. While the predominant educational interests of men and women in the Forces have, quite naturally, been vocational, there has been a good deal of educational activity of other kinds, ranging from hobby and craft pursuits to the acquisition of a general knowledge of the conditions in which we live, and of the affairs among which we move. It is of the greatest importance that both authorities and voluntary organizations should ensure, so far as they can and as soon as they can, that these men and women will not seek in vain for opportunities to pursue similar interests in civilian life. The setting up recently of the Bureau of Current Affairs for the publication of a fortnightly series of current affair discussion briefs and map reviews on the lines of those so long familiar to the Forces is of great encouragement.

84. It may serve our present purpose to summarize briefly some of the lessons afforded by educational services in the Forces.

(i) Residential courses, where students have been able for three or four weeks to devote their whole time to the pursuit of some subject of their choice, have been an outstanding success. This suggests that there may be considerable scope for and value in short courses as a permanent part of adult education if a sufficiently wide range of subjects—practical as well as theoretical—is made available. These courses not only help the students to achieve results in their special study or activity, but broaden their outlook and stimulate their enthusiasm.



(ii) The importance of environment cannot be overstressed. Roomy and comfortable buildings, with appointments that suggest a cultivated mind, have provided an atmosphere in which, under enlightened leadership, has developed with astonishing rapidity a vigorous and inspiring educational life. Even when the accommodation available was indeed unpromising, but where taste in colour and design was employed in decoration and a real attempt made to achieve repose and comfort, the result was usually rewarding. Unquestionably the influence of attractive environment on the development of education in the Services gives encouragement to enterprise and imagination in the decoration of community centres, however simple these may have to be for some time to come.

(iii) News or information rooms have at their best provided opportunities for following the course of world affairs by means of charts, wall newspapers, diagrams and other displayed information, together with attractively displayed reading material. But news rooms can be quite sterile if they are made an end in themselves. They must have the lively support of the unit's members and be so directed as to stimulate interest and lead to its further development. They should in fact be situated in accessible and prominent places and in the charge of an imaginative individual or committee ; and they should be part of a building which makes provision for reading, with an adequate supply of books, as well as for discussions, lectures and practical activities. Displays must be purposeful, attractive and not overcrowded.

(iv) The number of people who are ready to take advantage of formal educational facilities is relatively small. The enthusiastic education officer, however, who has taken the trouble to discover the latent interests of his men and to cater for them at their own level, has found that many can be stimulated to take up some form of activity. Moreover, while relatively few are interested in theoretical subjects, the majority of men and women can be interested in practical subjects.

(v) Experience in the Forces also confirms that education is a social process, and often flourishes best in an atmosphere that is free and informal, and where activities and responsibilities are shared appropriately among all concerned. The spontaneous educational activities that have sprung up in some service clubs reinforce the views expressed in the Ministry's pamphlet on Community Centres.

85. It is not only in the Services, however, that community education has developed on a broader basis during the past few

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years. The need to encourage and instruct the civilian population to make the best use of the limited supplies of food, fuel, clothing and other articles of domestic use has led the government departments concerned to organize educational campaigns in which authorities have played an important part. As a result, teachers and organizers have been stimulated to discover methods of interesting large numbers of people whom the more formal provision of education had never touched. Some of these methods might well be incorporated as permanent features of our educational system and extended to other branches of knowledge. Displays, exhibitions, public demonstrations, not only have an educational value in themselves but often lead individuals to seek fuller and more continuous instruction such as is provided in regular classes. The same kinds of methods apply to the more permanent and continuing advice bureau, and this—together with the information room to which reference has already been made—might with advantage become a feature of our community centres, or become the nucleus of such centres until they can be fully established.

86. The lesson to be learnt from these war-time experiences is that when we plan our further education we must do so in the widest possible terms, thinking not only of the types of studies and activities to be provided, but placing also a proper emphasis on the potentialities of the individual man and woman, and keeping our methods and organization flexible and responsive to their needs. Nor must we neglect a particular opportunity for securing allies in our task. Among the men and women returning to civilian life, numbers have played a part in the educational work of the services. A few have carried responsibilities in that work : many others have often contributed to it tentatively and inconspicuously. But, according to their aptitudes, they all have resources to be enlisted in the cause of civilian education : on committees or on the staffs of authorities, experimenting in running information rooms, initiating or developing community centres, even building and decorating them, leading discussion groups, stimulating activities. What is important is to extend a welcome and enlist their help here and now.

### (iii) ORGANIZATION AND STAFFING

#### *Disparities as between different areas*

87. EDUCATIONAL OPPORTUNITIES for those who have left school are very uneven ; and, apart from a general tendency for urban areas to be better supplied than the countryside, bear no constant relation to geographical circumstance or to size of population. Thus variations between the provision made in comparable county

boroughs or between similar county areas amount in some cases to a ratio of ten to one. These wide variations are due to a number of causes, among the chief of which is that in this field it is necessary to stimulate demand as well as to organize supply. Qualities of enthusiasm and drive are therefore particularly rewarding. There have, moreover, been marked differences between authorities in regard to the place and status given to general adult education, and the extent, for example, to which full-time organizers have been assigned to it. Then there has been considerable variation from area to area in reaching and working out an agreed policy on the part of the authorities, the universities, and the voluntary educational organizations. Some universities, too, have supported their extra-mural departments more effectively than others. Most important of all is the marked difference in the degree to which authorities have felt disposed to provide continued education themselves, or to strengthen the hands of local voluntary organizations engaged in such work in one form or another. Such variations prove this much at least; that, given the will, a very substantial increase in available opportunities can be brought about without going farther for an example than the better-provided areas at the present time.

### *The need for a thorough survey*

88. A necessary step towards a systematic expansion is a thorough survey in each area of existing educational opportunities of all kinds. How far do these opportunities meet different needs? How are they distributed among the various institutions in the area? Do they, in sum, provide for a comprehensive range of interests? Do the opportunities fit in with the leisure time of adults in the area, *e.g.*, married women, shift workers? To what extent are the special educational needs of women provided for? How is the area situated with regard to accommodation and where are the most pressing deficiencies, both in regard to adults and young people? What are the immediate possibilities of progress in the direction of community centres and village halls? What are the authority's staffing needs in order to carry out a progressive policy?

89. In answering these questions, a balance must be struck, for example, between concentration of teaching services in large colleges of further education of one kind or another, and their dispersal among smaller establishments and organizations throughout the area. It may well be that these large colleges will in turn develop extra-mural activities and extend their influence abroad.



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### *The advantages enjoyed by larger colleges*

90. The concentration of a great variety of adult educational opportunities under one roof has an appeal of its own ; and as is the case in a good department store, it can under wise leadership provide for a wide selection without loss of quality. There is advantage to students in having available in one building an ample choice of subjects for study, together with the interests and recreations of a corporate college life. The large college gives scope for independent development of student associations, which in turn foster their own loyalties and often stimulate new demands upon the teaching resources of the college. With its own hall and stage, it can provide facilities for physical education, and for musical and dramatic societies. Moreover, such a college or institute bears permanent and visible witness to adult education in its immediate vicinity.

91. There are in existence, and especially in London, several examples of establishments which offer a liberal range of studies and activities for adults and which between them provide examples to be studied when schemes of development are being prepared. The Working Men's College and Morley College in London and Vaughan College in Leicester have for many years attracted large numbers of students interested in a great variety of studies. The literary institutes of the London County Council, their men's and women's institutes, and the village colleges of Cambridgeshire, are examples of institutes in which authorities have moved beyond the realm of technical education. In many areas, technical colleges have broadened their scope to include liberal studies and recreative activities. The development of establishments for adult education among voluntary associations has been limited by the high cost of their provision and maintenance ; but some outstanding instances of successful work can be shown, for example, by the Y.M.C.A. and the Y.W.C.A., by educational settlements and community centres, and by residential colleges for adult education. There is something to be learnt from the experience gained in each of these different types of educational centre, especially when there are added to it the possibilities opened up by more extensive support from public funds. In most areas the demand will only be fully met by a variety of forms ; but within the range of experiment and innovation which it is hoped will take place in the next few years, some place should be found in most areas for a college for adults which will provide a wide and varied choice of leisure-time interests and activities.

### *Making full use of resources*

92. While it may be possible to concentrate a substantial proportion of the local teaching resources in this way, it will still remain



necessary to employ much of them in the smaller evening institutes, within the environment of the various voluntary organizations, and in any suitably available premises in the area.

93. In addition to maintaining their own adult education institutions of various kinds and providing a range of teaching services in them, here are some of the opportunities before local education authorities.

(i) Providing a range of teaching services, some of them operating extra-murally from their own institutions, for the members of voluntary organizations, both adult and youth.

(ii) Ensuring close working arrangements with the universities and other Responsible Bodies in regard to the provision of what are here described as courses in liberal studies ;

(iii) Supporting and encouraging through the services of organizers and advisers, the use of accommodation or equipment, and the giving of grant in aid ; and in other ways strengthening local organizations with broad educational purposes and potentialities—for example, youth organizations, rural community councils, women's institutes, townswomen's guilds, the Y.M.C.A., the Y.W.C.A., community centres, and miners' welfare institutes.

(iv) Exercising general initiative within the community through conferences, training courses, and publicity for educational progress ; and in other ways focusing attention on particular problems or new developments, and providing a forum at which local interest in these problems and support for these developments can be enlisted and directed.

#### *The need for consultation and joint planning*

94. The relationship between the authorities and the responsible bodies for adult education calls for special comment. The new regulations for further education, like the old adult education regulations, allow grant aid to be given by the Ministry directly to these bodies. They operate a teaching service, and their grant from the Ministry is related to a programme of classes and courses submitted in advance. This teaching service is restricted to the field of liberal studies, *e.g.*, the study of history, economics, political science, literature, philosophy, and the arts. These responsible bodies have a long history of pioneering endeavour behind them, and it is important, now that local education authorities have a general responsibility for further education, to ensure that the resources of the authorities and the responsible bodies are closely dovetailed. For this reason, the new regulations lay down that specific machinery for consultation and joint planning should operate between them.

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95. The number of students attending classes conducted by the responsible bodies in 1938-39 was 56,712. This figure fell to approximately 45,000 during the early part of the war, but had risen again by 1944 to about 70,000. A provisional estimate of the number of classes held in 1945-46 suggests a considerably higher enrolment than ever before. Though relatively small in number, these classes, attended as they are for serious and continuous study, have a special value and significance. There is plenty of room for expansion, as recent enrolment figures show. Moreover, as a result of improvement in the accommodation available for their work, for example in community centres, and the more adequate support from the Ministry which the new regulations permit, it is reasonable to expect a substantial increase in enrolments during the next few years. Whether this development takes place or not will depend very much upon the degree of co-operation achieved between the responsible bodies themselves, and with the authorities. The possibilities are great ; but good tutors are not unlimited in number. The various organizations must therefore reach agreement on the contribution which each is best fitted to make in a given area—a functional rather than a territorial line of demarcation. For example, a part of an authority's encouragement of this kind of adult education may well take the form of giving financial support toward the local organization of the responsible bodies in this field. In respect of their teaching service, however, responsible bodies receive direct grant from the Ministry ; the authority's grant, therefore, must not be made for the same specific object. If then the authority's contribution is to be recognized by the Ministry, it should be applied to some purpose related to organization which the responsible body has not included in its teaching programme submitted to the Ministry for direct grant.

### *The need for adequate staffing*

96. Systematic expansion of adult education will require additions to existing staff. In particular two kinds of organizer are necessary :—

(a) general organizers to provide an essential link between administrators, teachers and students, and to develop the work among adults in the same way that youth organizers have helped the youth service forward during the last five years ;

(b) specialist organizers, for example, in music, drama, physical education, and domestic subjects, who will stimulate interest in these subjects among adults and young people alike. Some of these organizers will be employed by the local education authorities themselves ; others by independent county music or drama committees, by rural community councils, or by similar bodies.

97. In practice, no doubt, there will be as many variations in methods of organization as there are numbers of authorities. In some areas local organizers may be appointed with responsibility for the whole range of adult education for adults and young people. Elsewhere there will be specialization to some degree. The aim, it is suggested, should be to strike a balance which will allow the different needs and interests, individual and community, to be seen as a whole and yet permit real and intimate knowledge to be built up regarding each of them.

98. A small full-time teaching staff employed both by the authorities and the responsible bodies is necessary as a permanent nucleus giving continuity to the work, and devoting attention to the special problems of adult teaching. They can develop a tradition of experience in the methods and standards of teaching and about the sensible use of teaching aids such as books, films and gramophone records. Such a body of full-time tutors, skilled, capable, and often distinguished, already exists; and will require new recruits, with diverse qualifications and experience, as expansion becomes effective.

#### *The value of an interchange of staffs*

99. While adult teaching will always call for a certain quality of mind and breadth of experience, there are good reasons against confining its practice too narrowly to a group of specialists. Indeed, there is much to be said for fluidity, for a moving-over from one part of the educational system to another; from teaching in school to teaching adult audiences; from teaching undergraduates to teaching in extra-mural classes; from employment by an authority to service in a university or in a voluntary organization, without loss of professional status or of superannuation rights. The more flexible arrangements made in the 1945 Teachers Superannuation Act were in part designed for this purpose, to stimulate the flow of teachers of varying experience throughout the education service and so enable individual men and women to follow their bent and to gain in experience. A further step in this direction may become possible when the supply of teachers for primary and secondary schools is more adequate than it is at present. Certain teacher training departments, for example, might give a twist to their curriculum in the direction of youth leadership or of adult teaching for students who showed an aptitude for either. A corollary of this development and again related to a more adequate supply of teachers will be a wider adoption of an arrangement already practised to some extent, whereby a teacher in a secondary school, in an art school, or in a farm institute will be released for a certain



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number of periods during the week to take "extra-mural" classes in some local adult or youth organization.

### *The services of part-time teachers*

100. School and university teachers at present provide between them a substantial proportion of the part-time teaching strength of adult education. But we need also men and women outside the teaching profession, and indeed the more varied their occupations, the better. Given the necessary competence in a subject, adult audiences are sensitive to the authority of personal experience and achievement. Expert and interesting knowledge of some department of life is possessed by most of us, and even if it may not fill a book, it may at least provide material for a talk or start a discussion. In the future we must increasingly tap the reservoirs of experience and skill. Workers in industry and commerce, scientists and artists, doctors and nurses, councillors and clerks, lawyers and policemen, all have at least one story to tell. They are not equally good at telling it, and something can be done to improve this. There is on the part of a great many people a readiness to accept some form of social responsibility as a service to the community, whether for example as a youth leader, as secretary of a women's institute, or as chairman of a Workers' Educational Association branch. To take an active part in adult education, to be prepared to contribute such special knowledge or skill as one may have acquired and to take pains to be able to impart this is as important a form of social service as any other ; and it is for those responsible for further education to mobilize the gifts and knowledge that there are in the community and make them generally available. In this way it may be possible to build up a tradition of adult education among a much wider circle of people than are usually drawn into this field.

### *The Value of Short Courses*

101. What can be done to impart suitably the knowledge within the community so that it can raise the level of popular discussion ? Some reservation was expressed earlier in regard to the setting apart for a career in adult education of more than a nucleus staff. And the same reservations apply to long courses of training designed specifically with such a career as an objective. But there is certainly scope both in regard to full-time and part-time teachers, for short courses in teaching methods as applied to adults ; and any enterprise or encouragement given by authorities will be a positive step towards a more active and enlightened public opinion.



## (iv) TOWARDS A BALANCED PROGRAMME

*The Grouping of Different Interests*

102. The aim of any programme of adult education must be to provide men and women with opportunities for developing a maturity of outlook and judgment, for increasing their sense of responsibility and awareness, for helping them to evolve a philosophy of life, and to develop interests which will enrich their leisure. This is an immense task : since the potential student body is not, as in secondary schools or in universities, selected by age or by ability, but comprises the entire adult population of all ages and of all degrees of ability and taste. It is well, however, that the reach of all concerned with adult education should exceed their grasp, and that they should keep before them a clear idea of the ultimate aim ; applying this as a touchstone to experiment, so that quality may be preserved and education be more than entertainment.

103. A broad classification of the different types of interest in adult education may be attempted, although to insist too rigidly on these groupings would clearly be neither useful nor practicable. Indeed, there will be many classes which could with equal logic be placed in more than one group. The comments that follow will be made under three headings—theoretical studies, foreign languages, and practical activities—with a further paragraph on the informal auxiliaries of adult education.

104. An approximate estimate made before the war of the distribution of adult interest between these three main groupings, showed that about 16 per cent. of the provision of adult classes other than vocational was in theoretical studies, 10 per cent. in foreign languages, and 74 per cent. in practical activities. There did not appear to be any great competition between these groupings. Where provision was strong in one it was relatively as strong in the other two ; and where it was weak in one it was relatively as weak in the other two. There is, therefore, little fear that a demand for one group of interests will stifle demand for the others ; and it follows that good provision for one group does not justify meagre provision in the others. There must be expansion in all three.

*Theoretical Studies*

105. Liberal studies comprise the social subjects (*e.g.*, history, economics, and social psychology), literature, study of the arts, natural science, and philosophy—all of them subjects which are concerned with the understanding and appreciation of human life, its achievement and environment. The normal way of

approaching these studies has been through the traditional academic division into subjects, *e.g.*, social history, or economics ; another approach is through consideration of a limited and concrete topic, such as " The causes of unemployment " or " The planning of a town ". On the whole the second approach makes the wider appeal ; but there is scope for both, and some students will wish to tackle the more academic method after some experience of the other type of class. There is scope for this second method also in stimulating an interest in science, which in pre-war years was only slightly developed among adult students. But for either approach, a tutor is required who has not only academic competence, but breadth of outlook ; and ability to relate his problem to other fields of knowledge.

106. A high level of civilization requires that as many people as possible should share in some measure in the appreciation and understanding of cultural traditions and achievements. Adult education must therefore seek to attract to liberal study as many men, women, and young people as are able to benefit from it. This means a careful consideration of the different degrees of interest and ability in potential students, and an arrangement of classes accordingly. The number of men and women who are willing to undertake the discipline of serious study over a considerable period is relatively small. But the importance of this group far outweighs its size, for from its ranks come many of the leaders of those groups and associations which are such an important part of democratic society. The majority of likely students, however, are those prepared to be interested in a course which, initially at any rate, does not commit them to much effort outside the class or to attendance over a long period. Among these students are found many different attitudes and educational backgrounds : some for example, require a good deal of stimulating, some are in need of simple, even elementary, instruction, some find that their understanding and capacity to learn develop with practice, some are well-informed people who wish to keep in touch with modern thought. An authority should so far as possible provide a sufficient variety of courses to meet the needs of these different types of student, and its local regulations should be flexible enough to permit courses of varying duration and of different types.

107. The understanding and appreciation of the arts, music, painting, sculpture and architecture, is a subject which has not received enough attention in the past. To some extent this represents a deficiency in organization, for there certainly are large numbers of artists both amateur and professional who would be ready to share their knowledge and enthusiasm with others if they

received encouragement to do so. There is scope here for close co-operation with the local art school and art gallery, where help and advice in initiating and planning courses which are designed to give students an insight into the visual arts should be freely utilized. Such discussion tends to be empty, unless enlivened by the study of actual works of art.

### *Foreign Languages*

108. A small group of students is interested in the study of foreign languages. The aim here should be to build up as quickly as possible a working skill, which the student will be able to put to practical use within a reasonably short time. Hitherto, evening courses in language study have been spread over a number of years, with usually only one lesson a week throughout each session. This protracted programme has tended to slow down progress, kill interest, and too often has achieved very little that is really effective. Intensive study on the other hand generates confidence and has a cumulative effect. Students should be encouraged whenever practicable to cover the initial stages of a language in this way.

### *Practical Activities*

109. These are far the most popular form of adult education. No programme will be satisfactory which does not make ample provision of this kind ; and this will mean careful thought about accommodation. Examples of practical activities are homecraft and home-making ; crafts such as woodwork, metal work, leather work, modelling, and the arts of drawing and painting ; and group activities such as play-production, orchestral playing, and choral singing. (See also Appendix VIII.) Some authorities make considerable provision for these activities, but there are areas where it is small in quantity and narrow in range. An element of theoretical study should form part even of the practical class. For example, there should be some study of hygiene in physical education activities, dressmaking should include a study of design and of the qualities and limitations of materials, and country dancing involves some interest in the history and traditions of the dance. Teachers must therefore be selected who have not only sufficient practical skill, but also the knowledge and background to treat their subjects in a broad educational manner.

110. It has not hitherto been easy to find enough teachers who combine skill in craftsmanship with knowledge and appreciation of artistic qualities, and authorities might well consider arranging in appropriate cases for teachers of craft subjects to attend courses

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of instruction to this end in art schools. There should in any case be close co-operation between art schools and colleges and other establishments of further education in the teaching of craft-subjects ; and the influence of the art schools should reach beyond their walls.

### *Informal Education*

111. In addition to formally organized courses, there is great scope for informal activities which, besides having an educational value of their own, may serve to arouse interest, or may themselves develop into a serious attack on some intellectual or practical problem. There is a place for single lectures and demonstrations, lecture-concerts, brains-trusts and discussion—including wireless discussion—groups, in social organizations of all kinds, as well as in colleges of further education and kindred establishments. Special skills are required from organizers and teachers of these exploratory ventures in education. A capacity for popular exposition, social gifts and the instinct for quickly making contact with an audience are essential.

### *Broadcasting*

112. The preparation of this pamphlet coincides with the launching by the British Broadcasting Corporation of their third programme : a programme designed “ for the alert and receptive listener, who is willing first of all to make an effort in selection and then to meet the performer half way by giving his whole attention to what is being broadcast.”

113. The effect of this development in broadcasting and of the policy which lies behind it will inevitably be far-reaching, and the B.B.C. can be assured of the sympathetic support and encouragement of everyone concerned with further education. Broadcasting is an intimate medium of education and its greatest influence upon us will be as we listen in the quiet of our own homes. Those of us who are concerned with organized further education will do well to consider however whether, in addition to its indirect and gradual influence upon our work, the third programme does not call for special consideration on our part during the coming months. It may be that in establishments of further education of all kinds the experiment should be made of placing a wireless set in a small room at the disposal of those who wish to listen to the third programme. At all events we must be alive and ready for new demands upon our resources, and for a quickening of interest in much that we now do.



*Exhibitions and Films*

114. To-day, the value of visual methods in education has been fully recognized, and the lack of suitable material which has in the past been a handicap is being made good in many directions. The exhibition is one important medium for visual education that has gained greatly in popularity of recent years. Exhibitions may range in subject from the purely practical—such as those sponsored by some authorities for health and housecraft demonstrations—to collections of artistic and historic interest like those circulated by the Victoria and Albert Museum, the Arts Council of Great Britain, and the British Institute of Adult Education. A natural focus for this particular form of education through the eye is the local museum. Museums and galleries are, indeed, playing an increasingly important part in the educational life of their localities; and possibly their greatest contribution can be made in the field of further education. If they are valuable as a base for the display of material supplied from outside sources, they have a more significant function in fostering local distinctions and traditions of all kinds. This they can do by the general arrangement of their permanent collections, by special exhibitions shown on their own premises, or by travelling exhibitions circulated to other centres in the locality—for example, to colleges of further education or to community centres. An outstanding value of the exhibition method is that it does not provide instruction only, but by the display of real things, of works of craftsmanship and art, it gives a training in visual appreciation, a sense of quality and individual character.

115. Another most important medium for visual education is the cine-film, and at the present time the supply of specially produced educational films is being rapidly increased. The film, like the exhibition, is well adapted for the demonstration of practical activities and skills of all kinds, and to the communication of cultural ideas and values. But it has a further distinctive contribution of particular importance in further education. Owing to the exceptionally strong emotional impact of the cinema, films dealing with controversial topics—as, for example, the whole range of modern social questions—can be relied upon to provoke discussion and arouse interest in current problems. There are now a number of sources for educational films. In addition to the well-known commercial film libraries, there is the Central Film Library where officially sponsored films are available free of charge; and the National Film Library run by the British Film Institute, with its large historical collection of films of all kinds and all periods.

116. Mention should also be made of the humbler filmstrip, which consists of a series of pictures printed on lengths of cine-film and projected like miniature lantern slides. Being cheap and

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easily handled they are an ideal means for illustrating informal demonstrations and lectures. These are already obtainable for a wide range of subjects from several commercial producers, and are likely to be supplied in increasing number from public sources. For those who still prefer the ordinary lantern slide, the largest and most accessible public collection is that of the Victoria and Albert Museum.

117. The mechanical equipment, cine and filmstrip projectors and the rest, necessary for the display of visual material is now again on the market ; and it is to be hoped that no important new educational buildings will be put up unequipped. For individual shows, mobile projectors with trained projectionists can be secured by arrangement with the regional film officers of the Central Office of Information. Normally these mobile units can show only those films that are in the Central Film Library.

### *The Library and Further Education*

118. The public library has long been the arsenal of adult education, sometimes supplying boxes of suitable books to groups and classes meeting in all sorts of premises within its area ; and supplying also single volumes to a great army of individual readers. The service of the good librarian is twofold : he finds the best available books when called upon to do so for every type of need, and gives expert bibliographical advice to anyone who asks for it —student, teacher, or general reader. Obviously, therefore, in planning library provision for further education, local education authorities should have the benefit of the expert advice of the librarians in their area.

119. Opportunities for mutual service between the library and local educational and social institutions are many. The library for example can give hospitality to study groups and classes, or publicity to the affairs of the local community centre or college of further education ; and these institutions in their turn can give facilities to the librarian to explain to their members and students the services of the library. One at least of the criteria of future success in extending adult education will be in the increased demands made upon the public library service for private reading ; and a close understanding between librarians and teachers and organizers of further education is of the greatest importance.

### *The College Library*

120. Large colleges of further education should include libraries of their own, whose function it will be to give access to books required by students on specialist subjects and for background

reading, to give students some training in the use of library facilities, and to provide a quiet and pleasant room for private study. The importance of a well-planned library has been recognized in colleges built within recent years. Some have been provided with libraries which, but for the shortage of books during the war, might well be models of their kind. When college libraries are being planned there should obviously be consultation with the librarian of the local public library so that the relationship between the two services may be defined and co-operation ensured. For example, agreement must be reached as to which library will be responsible for supplying boxes of books to any outlying classes under the auspices of the college ; and as to the extent to which the college library will stock books for general reading or draw upon the public library for this purpose.

121. The libraries of technical and commercial colleges are probably more quickly affected by the obsolescence of works of reference than are others ; so that in the technical and commercial sections of college libraries, new books must be bought to replace out-of-date editions as well as to add to the collection. Indeed, the judicious discarding of books which are no longer capable of meeting a need is a task requiring care as great as that of supplementing the stock, although—unless war-time needs for salvage have created a new tradition—it rarely receives as much attention. Technical discoveries and inventions do not wait on the convenience of purchasers of books, nor do changes in the world of commerce ; and however unpalatable it may be to the purchaser, the discarding process should be ruthlessly pursued wherever there is the least danger of perpetuating error. Similar care tempered by tact should be taken where gifts of books are made to college libraries. The most adequate supply of books cannot keep pace with day-to-day pronouncements about innovations and discoveries which the student cannot afford to neglect. The technical and commercial section of the library should include a selection of journals and reports. These should be carefully handled and suitably bound and preserved where their merit is sufficient. Articles and reports of technical and commercial importance appear frequently in journals which are not in their entirety worth preserving. This suggests an indexed filing system for cuttings, and some arrangement for the regular review of the material filed so that out-of-date material may be discarded. Some provision will also have to be made for reference and introductory books on cultural subjects ; for such standard works as are not readily available at the public library ; for a selection of foreign books ; and for books on the technique of different crafts, preferably those generously illustrated with good designs. Here again, consultation



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with the officers of the public library will be important in order to avoid duplicating an unduly wide range of books. As a general rule, text-books should not be included in the library but should be purchased by the student, who should be encouraged to build up a collection of his own books.

### *The Importance of Skilled Direction*

122. The college library should be under the direction of a trained librarian, because skilled direction may mean the difference between a library which is merely a repository for books and one which is an effective educational unit. The librarian should have ample assistance where the dimensions of the work warrant it. Few institutions are too small to justify a part-time appointment, even if this is limited to a visit of one or two hours each week. The work is highly skilled, and its efficient execution is too important to be left entirely to the inexperienced volunteer.

### (v) WOMEN'S SPECIALIZED INTERESTS

123. INCREASINGLY IN the years before the war, men and women were enjoying their recreation together and were joining the same educational classes and activities. The war has accelerated this tendency, and there is little doubt that many young women demobilized from the Services and from war work will be looking for the same kind of educational and social opportunities as the men with whom they have been working. It is to be hoped that more and more it will be found possible to make arrangements for children to be looked after, so that married women with young families may be free on certain evenings to take their place in the normal educational and recreational opportunities of the community.

124. By women's specialized interests are meant those which centre round the home. Reference was made in Circular 117 to the fact that the happiness of home life is so largely dependent on the knowledge and skill applied to the running of the home and the upbringing of children. Authorities should therefore do their utmost to encourage the provision of facilities for enabling young women contemplating marriage, as well as those already married, to increase their skill in housecraft. Too often in the past there has been a lack of imagination in planning programmes of this kind, and indeed for women's classes generally. They were too often limited to the traditional craft classes in needlecrafts and cookery, and to first-aid and home nursing. The housewife's part in the war, and the development of the domestic front campaign, have revealed both to the housewife and the teacher the great variety of subjects and treatment that are



possible, and the many different ways in which women's interests can be served both inside and outside the classroom. The organizing of educational work for women should give scope for development along these lines which have proved so fruitful during the war. There are opportunities in cookery classes, for example, for discussion on the planning of a balanced diet. Dressmaking is a subject which can cover the whole complex and important art which produces the well-dressed woman, and can include guidance in buying materials and considerations of style, design and colour to suit the individual, as well as the prosaic but ever necessary make-do-and-mend. Classes in housecraft and home management give scope for a wide variety of interests : repair and decoration to fabric and furniture, planning good colour schemes, the best organization of domestic equipment, family budgeting, the planning of the day's work and leisure. Health classes, besides covering the usual home nursing syllabus, can consider the needs of different ages in regard to nutrition and clothing, while in the programme of a class on child study, discussion of the physical and psychological development of children may well be varied with some practical work, for example, in making children's clothes and toys.

### *The Need for Day-time Classes*

125. Many women will continue to find it easier to attend classes in the mornings or afternoons rather than in the evenings, and any survey of accommodation for further education should have this fact very much in mind, so that suitable rooms may be made available. Classes and activities arranged to suit the particular convenience of women in this way should attempt to provide for a range of subjects not necessarily connected with the home, *e.g.*, classes and courses in music and drama, in physical education, in crafts such as embroidery, or in civic or foreign affairs. Short courses with specific objectives, such as "The Child Under Five," or "Housing for the Aged," can serve as a good introduction to a more extensive discussion of education, housing, town planning, local government, and so forth. The social needs of the woman who is tied domestically are also an important consideration. It should be possible for women attending day-time classes to enjoy the social amenities on these occasions.

### *Staffing Requirements*

126. There is considerable variation possible in the type of class, or course, most suitable for women's needs ; ranging from courses organized for specific subjects on a terminal or a yearly basis to short courses of five or six meetings or even single demonstrations

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or lectures, given at the meetings of women's organizations. Many authorities employ a number of peripatetic full-time teachers, especially in rural areas, to visit both the authority's own classes in outlying districts and classes in women's organizations, and to organize exhibitions and demonstrations. Further development will require more full-time as well as part-time teachers, both for visiting services of this kind and for the staffs of colleges. Authorities should consider organizing short courses of training and one-day conferences in order to give teachers some insight into the problems involved in this kind of work.

127. Women should always be adequately represented on further education committees or sub-committees of an authority. Indeed, it may even be valuable to have a special women's sub-committee on the lines of the advisory committees which have given such good service in many areas during the war years in connection with the domestic front campaign.

### (vi) COMMUNITY CENTRES AND PLAYING-FIELDS

#### *Responsibility for Development*

128. In a pamphlet published early in 1945 some suggestions were offered by the Ministry for an extensive development of community centres. It is not necessary to cover the same ground again, but the following comments, regarded as a postscript to the earlier pamphlet, may be useful as reflecting recent public discussion and administrative practice.

129. General responsibility for the development of community centres rests with the Ministry of Education and local education authorities, and such responsibility implies at least that the broad educational possibilities will not be overlooked. It may mean something much more positive than this. The effect of a substantial increase in the number of adequate and comely buildings providing for the social life of the people, yet ready to give as a matter of course generous hospitality to educational innovation and experiment, might be a significant advance in adult education of every kind.

#### *Methods by which Community Centres may be Provided*

130. The fact that authorities have general oversight in these matters does not mean that all community centres must necessarily be provided by them. In this, as in other respects, the local

community can express itself through different agencies. Community centres may in fact be provided in any of the following ways :—

(a) by a local education authority exercising its powers under Sections 41 and 53 of the Education Act, 1944 ;

(b) by a local authority other than a local education authority, acting in its capacity as a housing authority under Section 80 of the Housing Act, 1936. Here there is a general understanding with the Ministry of Health, according to which centres will normally only be erected by housing authorities when new housing estates are being established, and then only after consultation with the local education authority to ensure that the proposals fit in with their general plans ;

(c) by a local authority, other than a local education authority, exercising its powers under the Physical Training and Recreation Act, 1937. In rural communities with populations of less than 4,000, grants and interest-free loans towards the capital costs may be obtained, as indicated in a later section, through the Village Halls Committee of the National Council of Social Service who administer funds made available by the Carnegie United Kingdom Trust and the Development Commission. In the case of larger communities, application may be made in consultation with the local education authority for direct grant from the Ministry of Education under the terms of the Physical Training and Recreation Act, 1937 ;

(d) by a local voluntary organization with assistance from local education authorities, or from the National Council of Social Service, or from the Ministry of Education as described at (c) above.

### *The Maintenance of Community Centres*

131. Men and women should carry as much as is reasonably possible of the responsibility for the maintenance of their own social institutions, but should not be in the position of having to concentrate all their efforts on raising funds. Obviously they are better able to make ends meet than are the members of a youth organization. It will often be the case, however, that some contribution from statutory funds will be necessary towards the running expenses of a community centre if the membership subscription is to remain within the means of every member of the community. Such assistance towards the *maintenance* of community centres is available only from the authority. The direct grants from the Ministry of Education under the Physical Training and



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Recreation Act referred to in the previous paragraph are intended to help this work forward by contributing toward *capital* costs only.

### *Alternative Accommodation*

132. Authorities were invited in the Ministry's pamphlet to make a survey of their area "with a view to identifying the districts in which community facilities are needed, and listing these districts in order of priority." These surveys are now under way in many areas and their results will go toward the shaping of local community centre policy. Encouragement is given elsewhere in this pamphlet to the consideration of a short-term policy of improvising accommodation for community centres in adapted or prefabricated buildings. Here the possibility is emphasized of making some immediate progress through giving assistance and support to local institutions which already serve, or can be made to serve, as community centres to their areas.

133. Examples of such institutions are the Miners' Institutes sponsored by the Miners' Welfare Commission; the numerous educational and social settlements up and down the country, many of which have now developed on community centre lines; Civil Defence Clubs and the War Workers' Clubs established originally for the use of transferred war workers, but having in many cases a permanent contribution to make to the social life of their locality. The Miners' Welfare Commission recently published a pamphlet entitled "Miners' Welfare Looks Forward" in which a number of far-reaching and constructive proposals were made for the future well-being of the institutes in the mining areas. Among these recommendations was one which suggested that "steps should be taken in close co-operation with the authorities to stimulate cultural activities at Miners' Welfare Institutes, including classes and discussion groups for the discussion of current affairs, literature, art, music, and drama, and classes for physical training".

134. To this were added two other recommendations urging wider use of the accommodation at Miners' Welfare Institutes to provide amenities for women and young people. The possibility of development which might follow a fuller use of institutions of this kind, whether traditional or of more recent development, has an obvious appeal, especially at a time when new centres cannot be built in great numbers. Some mining areas are unusually well provided in this respect, but it is hoped that authorities everywhere will in the preparation of their Schemes of further education examine existing establishments in their areas, however they may be described, and deal generously with them according to their needs and potentialities.



*Playing-Fields*

135. If the idea of the community centre expresses clearly one aspect of the new responsibilities of authorities in the matter of the social and physical training of those for whom further education is provided, playing-fields express another. The subject calls for brief comment here for one or two reasons. The Education Act encourages authorities to provide opportunities for outdoor recreation for those men, women, and young people who are participating in some way in the further education provided or assisted by the authority. That means in practice that the provision or maintenance of playing-fields for members of local youth organizations, schools, colleges, and community centres is a right and proper matter for inclusion in schemes for further education. Indeed it is a matter of some urgency that convenient sites for playing-fields should be acquired before they are earmarked for other purposes.

136. The question has been asked : to what extent is an authority entitled to contribute, for example, toward the provision or maintenance of a playing-field used generally by the local community ? The short answer is, only to the extent of the *organized use* made of it by those who are engaged in further education of one kind or another. During the passage of the Education Bill through Parliament, it was pointed out that the Act would not enable authorities to provide, for example, a bowling green for retired aldermen, however necessary this provision might appear to be. And this is in fact the case. Direct grants are, however, available from the Ministry of Education under the terms of the Physical Training and Recreation Act toward the capital costs of providing playing-fields which are to be available to the local community as a whole. The needs of the aldermen are therefore met, provided of course that the bowling green is available for use by the community as a whole.

## (vii) THE NEEDS OF THE COUNTRYSIDE

137. EDUCATIONAL SERVICES in the towns are generally both more ample and at the same time more specialized than in the countryside. More highly specialized they will no doubt continue to be, but that is no reason why rural services should be less adequate. Specialization is to some extent an industrial by-product, born of the way of life of the large town, and it offers perhaps the key to the different approach that is needed in urban and rural education. In a special sense it is true that adult education in the rural areas is a co-operative affair, depending especially upon the leadership, experience, and knowledge that is inherent in village life.

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### *Shortcomings in Rural Education*

138. Opportunities for adult education in the rural areas are too few. There are perhaps three main reasons for these shortcomings.

(i) Accommodation is quite inadequate, and is too often discouragingly unsuitable and uncomfortable.

(ii) Arrangements are rather haphazard, and classes are held, not as part of an agreed plan, but to meet specific demands made by groups who know what they want and ask for it.

(iii) There is considerable variation in the amount of joint preparatory planning on the part of the authorities and other educational bodies with a view to formulating a local policy and making the best use of teaching resources.

139. There can be no doubt of the value of the intensive work done in many villages in the last five years by the various youth organizations, and especially by the Young Farmers' Clubs. There is here the promise of a great extension of adult education in the countryside in the future if the same degree of vigorous organization is brought to bear upon it. The following suggestions are offered very tentatively as a contribution to local discussion of plans for such an extension.

### *Methods of Development*

140. It would seem that any substantial advance of community education in the rural areas requires two closely related lines of development. On the one hand there should be concentration on the market towns and larger villages which are the natural points of focus and are, or shortly will be, defined as such by the establishment of secondary schools and county colleges. These natural centres would seem to be the source of supply to which the smaller villages can look for services and driving force and—given adequate accommodation—will develop into the normal cultural centres for the surrounding countryside. Equally the resources of accommodation and leadership in the small villages must be extended and strengthened.

### *The Dual Purpose of Certain Centres and their Staffing*

141. The centres which will develop in the market towns and larger villages, whether or not they are related to county colleges or to secondary schools, and by whatever name they are known, should be designed for a dual function: to serve the social and

educational needs of the local population, and to act as a powerhouse and festival centre for the adjacent villages. The accommodation should not only provide for classes and discussion groups but should also be able to house local music and drama festivals, exhibitions of art, advanced practice in craft and physical training, and other activities which it is not practicable to provide in the small villages. If adults and young people share this accommodation, both must obviously have certain rooms for their exclusive use. Such a centre would normally have a warden and a nucleus of expert teaching staff capable of developing a lively corporate life in the centre itself and of quickening the educational and social life of the surrounding villages, both through the impact and influence of the centre's activity and through a peripatetic service of teaching and advice.

142. The degree to which concentration of teaching services and activities is appropriate in a centre such as is described above will depend very much on the size of the immediately adjacent population, the flat or hilly nature of the countryside, and the extent of local transport facilities. In some areas colleges on the lines of the Cambridgeshire village colleges will be the aim. Elsewhere the appropriate plan will provide for smaller centres, with a greater emphasis on decentralized services to the small villages. The needs of these small villages themselves for premises and equipment adequate to enable village activities to flourish must not be overlooked.

### *Village Halls*

143. In the Ministry's pamphlet on Community Centres the view was expressed that it was desirable that every village, and certainly those with a population over 400, should be provided with a village hall. There cannot, in fact, be any adequate development of community education in the countryside without a very substantial increase in the number of village halls. Grants and loans are available from the Carnegie U.K. Trust and from the Development Commissioners to assist local enterprise in building halls, and these are administered through the Village Hall Grants Committee of the National Council of Social Service. Proposals for the erection of village halls should nevertheless be discussed with authorities so that in location and in accommodation, they should make the maximum contribution to the social and educational amenities of the area. In many of the smaller villages, young people and adults will meet in the same hall. The planning of accommodation to meet their separate requirements and to provide for instance for workshop activities is obviously a matter on which the authority's views will be valuable. Moreover, for some time

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to come the need to limit the use of building labour and materials will be paramount, and there are possibilities for economy in their use by relating plans for providing village halls to local proposals for erecting buildings for school or county college purposes. In such cases there may be scope for adding to the total amenity of the village by—

- (a) the common use of certain rooms ;
- (b) the provision of playing fields available for school and community purposes ;
- (c) the adaptation as village halls of redundant schools.†

144. Three points should be made about village halls. The first is the importance of ensuring that the village hall is administered by its committee in the interest of the village as a whole. The second is that the use of it should be within the means of all the individuals and interests in the community. The third is that when selecting the site, thought should be given to the possibility of associating a playing-field with it. This last is worth special consideration at the present time when the building of substantial village halls may often be delayed. A beginning can be made in the focusing of village life by going ahead with the provision of a good playing-field and perhaps putting up on it a club-house or pavilion of some kind which will serve as a meeting-place until a more adequate building can be erected.

### *The Working-out of Schemes*

145. Given a broad plan of rural development on the lines indicated above, with a two-way exchange of services and students, of ideas and inspiration, between the larger centres and the smaller villages, thought and experiment are needed to work out the form and content of this community education in each locality. Much will depend on how the nucleus of interest within a village develops. This may be through the meetings of an established organization such as the Church or Chapel or the Women's Institute ; or it may grow from discussions in the local inn, or round the distribution of books from the county library. To recognize a latent interest and to stimulate it into articulate support for a regular meeting or activity call for village leaders with imagination and enthusiasm. They in turn deserve stimulus and encouragement from organized educational resources : travelling officers of the authority, teachers from the neighbouring village college or centre, representatives of the extra-mural department of the university, training college, or residential college for adult education and of those organizations which serve the countryside, for example, the Workers' Educational Association, the Women's



Institutes, the Rural Community Councils, and the County Libraries. Village leaders should be aware of the resources available; but these resources may bewilder by their variety unless properly co-ordinated.

### *The Preservation of Informality*

146. It will be an encouragement to all educational groups, whether in the village or in the larger centre, if small rooms are available for their use. A homely and informal environment is needed alike by the quilting class organized by the women's institute, and by the group of farm workers whose interest in natural history has developed from leisurely discussions of country lore. Informality and a realistic approach are probably the first essentials of adult education in country districts.

### (viii) RESIDENTIAL EDUCATION

147. OPPORTUNITIES FOR residential education, whether for adults or for young people, have special values of their own which make it very desirable that they should be included in schemes for further education. For the time being, education becomes the main objective, and much more intensive study is possible than within limited hours of leisure. Not least of its advantages is the corporate life shared with teachers and students who have common interests, but approach them from different backgrounds. In particular there is the opportunity at even a quite short residential course to create an atmosphere and engender an enthusiasm for learning that is possible in no other way.

148. Since the time when Ruskin College was founded nearly fifty years ago at Oxford, some half-dozen similar residential colleges for adult students have come into being, one of them for women students. Before the war they provided courses of liberal studies usually lasting one, occasionally two, years for between 400 and 500 students each year in the aggregate, together with experimental short courses, including residential summer schools. Although the number of students who have passed through the colleges is not large, the year of residence has been of the greatest value to many men and women who have subsequently played a notable part in our educational, social and political history during the past 40 years.

149. In present circumstances, it is of course a serious step to take for a mature man or woman to leave employment for a year to pursue a course of study at a residential college: more serious, for example, than attendance at a Scandinavian Folk High School,

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where courses are usually shorter and the interruption to normal life and work less marked. The British Institute of Adult Education pointed out in their recent enquiry that the financial obstacle, in particular, will need to be overcome in the future if adult education for periods of a year or more at residential colleges is to be extended. "Adult students who leave employment and sacrifice wages for the sake of education cannot afford to pay a fee which would be adequate to cover their college expenses."

150. This difficulty has been met in a measure by authorities who have made grants to individual students, but the British Institute of Adult Education urges a more generous policy. Moreover, it is probably true to suggest that any widespread extension of long residential courses depends in the first place upon a tradition being established of attendance at short courses on the part of a substantial number of men and women each year. The chance of establishing any such tradition must depend inevitably upon the co-operation of employers in releasing their staffs for this purpose.

### *The Value of Short Courses*

151. There is scope for considerable experiment in the organization of short residential courses, whether for a weekend, for a week, or for a period of weeks. Authorities have made a start in this direction, for example, with short courses for teachers and youth leaders; and development in this type of training for teachers and leaders in the various methods of further education is likely to extend. Again, there are men and women in all walks of life and of all ages who appreciate the opportunity to withdraw from time to time from the routine of daily life, to revive in a fresh and vigorous atmosphere contacts with intellectual adventure which they enjoyed at school or in evening classes; to spend a period in the intensive study of a particular interest; or to keep themselves up to date with the latest developments of thought in some subject. Students for such short courses, especially in cultural subjects, will have to be carefully selected so that their educational attainments are comparable. Otherwise there may be waste of time and effort, and a possibility of disillusionment.

152. Many interesting experiments along these lines are in fact being attempted, for example in the short courses of liberal studies arranged by the Y.M.C.A., with the co-operation of industrialists, for men engaged in the managerial ranks of industry. There is also an increasing number of vacation courses and summer schools organized by the universities, residential colleges and other educational associations.

153. Many authorities are now considering the acquisition of property suitable for residential centres, and in some cases two or more authorities are sharing in a venture of this kind. It is reasonable to expect that every authority will require such a centre, either for its own area or in partnership with other authorities. The possibilities of an active centre are as fascinating as they are wide. A first essential would seem to be a warden of imagination and wide culture, able to create an atmosphere and a tradition in which a succession of groups starting from many different angles and working to many different aims, could rapidly establish themselves and feel at home. An attempt should be made to use the centres throughout the year and for as many different educational purposes as possible so that their influence may be widespread throughout their area. Provision should be made for practical as well as theoretical courses, and the centre should include workshop, craft rooms, and a hall and stage, as well as lecture and class rooms.

154. In addition to running its own courses, the authority would have a valuable opportunity to offer hospitality to local voluntary organizations wishing to conduct residential schools and conferences. In this way, the warden of the centre would come into close contact with leaders and officers, and through him the authority would gain a more intimate knowledge of the organization, its personalities, and its aspirations.

155. It seems fitting, when residential centres of this kind are maintained by authorities, that they should be described as colleges, and have governing bodies of their own. What is said about the importance of academic freedom for colleges of further education in an earlier chapter applies equally to these residential colleges.

#### (ix) THE YOUTH SERVICE

156. MORE HAS perhaps been written about the youth service during the past six years than about any other department of education. The Ministry's Youth Advisory Council has issued two reports, "The Youth Service after the War," and "The Purpose and Content of the Youth Service," setting out the main principles of the youth service in terms which have commanded general assent. Quite recently Miss Edwards-Rees has given good counsel in "A Rural Youth Service"; and in "Youth Service in an English County"—a report prepared for King George's Jubilee Trust—Mr. L. J. Barnes has offered a thoughtful and evocative analysis. There exists a very general agreement in regard to the principles which should guide the provision of leisure-time facilities for young people. They are summarized in "The



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Purpose and Content of the Youth Service"; and it would be presumptuous to enlarge upon them in a document such as this, which is addressed in the main to authorities who have been successfully engaged in putting principles into practice.

157. The purpose of the following paragraphs is to draw special attention to certain practical matters affecting future progress; and to urge that, as authorities prepare their schemes of further education, they will ensure that the youth service partnership between statutory and voluntary enterprise built up during the war years, shall be strengthened and extended. This represents a development not only of value in itself but also of great interest and promise in view of the increasing responsibilities of local government in the social and educational life of the community as a whole.

### *Some Reasons for the Progress of the Youth Service*

158. In only six years of existence, the youth service has already assumed an integral place in the education service. Its rapid development is due especially to three reasons.

(i) The quality of our young people—a factor sometimes overlooked.

(ii) The quality of the men and women who have stood behind these young people encouraging, stimulating, guiding: the officers and committee members of the authorities and of the voluntary organizations, and the thousands of voluntary workers in individual units.

(iii) The quality of the relationship between Ministry, authorities, voluntary organizations, and young people, which has enabled a considerable sum of money to be provided for many purposes, and yet allowed great freedom and flexibility in the way it has been spent.

As we move forward to new opportunities, tribute should be paid to the very able and devoted work of all who have been concerned with the youth service during these difficult formative years.

### *The integration of the Youth Service*

159. As a new element in the educational system, the youth service must be closely related to other branches of education and not develop in isolation. There are one or two ways in which the idea of integration can be advanced.

(i) Whilst youth committees and youth organizers, however they may in future be described, will continue to focus attention and give stimulus to the leisure-time activities of



young people, they must be familiar with other aspects of further education and of the juvenile employment advisory service so that they may be able to understand and advise on the wider problems and ambitions of the young people and to put them into touch with expert advisers who can give them more specific help.

(ii) The link between the youth service and the school on the one hand, and the adult community and its institutions on the other, must be assured—possibly through cross-representation on the authority's committees.

(iii) Emphasis has been laid throughout this pamphlet upon the importance of developing a social and corporate life in county colleges with informal activities of a broadly educational character. This represents in effect a widening of the frontiers of the youth service.

### *Youth Service and the County Colleges*

160. The best way of organizing "after-school" activities in county colleges will be a matter of practice rather than of precept. Clearly the colleges will not fulfil their purpose if their students have no interest in them beyond the short hours of compulsory attendance. They must develop a corporate life among those who attend them, and through student clubs and societies take their place in a wider youth service. The colleges must be designed and equipped so as to realize these opportunities for corporate social activity.

161. In "Youth's Opportunity", the Ministry suggested that 400 students a day in the urban areas and a minimum of 120 students a day in the countryside, would seem to be a reasonable figure of attendance at a college. According to this estimate, the total number of students who will spend one day in any given college each week will be between 600 and 2,000. A substantial proportion of the students will travel considerable distances to attend, farther doubtless than the average boy or girl is in the habit of travelling to and from a club after the day's work. Provisional conclusions on the following lines are therefore permissible. They will of course be affected by the density of the population immediately surrounding individual county colleges.

162. (i) The effect of raising the school-leaving age and of establishing county colleges will surely be that young people will make higher demands for leisure-time opportunities both for classes and other less formal and recreative activities and will expect better standards in what is provided.

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(ii) A proportion of the students attending county colleges and especially those who live in their immediate neighbourhood, will "link their leisure-time activities to the college to which they belong, and this will greatly assist the creation of a corporate spirit in the college". For these young people, the accommodation and facilities at the college should be ideal.

(iii) There will remain a large number of students who for one reason or another will seek their leisure activities in clubs and societies other than those within the four walls of the county college, though possibly using the college for special occasions. The need of their clubs and centres for better accommodation than exists at present is equally a matter for careful review district by district.

(iv) Apart from any other consideration, the accommodation at the county college will not be adequate to provide regular evening activities for all the students who attend there for one day in the week.

163. If (i) is realized, then in addition to those young people who spend their evenings at the county colleges there may well remain greater numbers than are at present active in the youth service to be provided for in the traditional youth organizations. In short, while there will be new opportunities within county colleges for those who are ready to give service as youth leaders, opportunities for such service outside the colleges are by no means likely to diminish.

164. The evening activities in the county colleges will call for both leaders and teachers; and it may be that this increased public provision for leisure-time activities will open up new opportunities for voluntary effort to extend its work and influence.

### *The Value of Youth Committees*

165. Among the essential features of the youth service have been the youth committees set up by the authorities in response to a suggestion made by the Board of Education in 1939. The intention was that the authorities should enlist the help and goodwill of representative men and women in their area, who could bring to bear on the work their knowledge and experience of different needs and interests of young people. The constitution of these committees differs widely: some have been modified in the light of experience, and a few are no longer described as youth committees but as further education sub-committees. All in all, however, they have played a quite important part in the development of the youth service, and the principle that lies behind their formation is sound. That principle is that as the statutory system

of education moves over to play an increasingly important part in the leisure-time activities of the people, statutory authority can be greatly strengthened and guided by mobilizing—either on advisory committees or otherwise—the initiative and wisdom of independent men and women who are concerned with particular interests.

*The Important Part Played by Youth Officers and Others*

166. The energy and enthusiasm of the youth officers of the authorities and their accessibility at all times have contributed greatly to a happy relationship between the authorities and youth workers generally, and it is hoped that in any plans for the future of further education or in the re-organization of staff that may result, there will be an adequate number of men and women available to give time and attention to the youth service. In some of the rural areas authorities have appointed leader-organizers who have helped to establish new clubs, and have discovered and encouraged voluntary leaders within a limited district. Working in association with the local youth advisory committees, the voluntary organizations, and their own colleagues, they have helped to plan club programmes, find instructors, and arrange short training courses, demonstrations, festivals, and sports meetings for groups of clubs in neighbouring villages. They have done something to break down the sense of isolation of remote villages, and to bring the resources of the county authority more intimately to their service. The youth service is essentially one in which there is everything to be said for decentralization and delegation of responsibility.

*Financial Assistance to Voluntary Organizations*

167. In a recent circular addressed to authorities, the Minister suggested that "the time has come for the local education authorities to assume in full measure their responsibility for giving such assistance as may be necessary to enable the local voluntary youth organizations to flourish effectively." What does this mean in practice? It means that while the Ministry will continue to contribute to the national headquarters of the various voluntary organizations according to their need, the statutory assistance necessary to promote the local work of these organizations must increasingly come from the authorities. It is intended that in the first instance, responsibility for grants towards maintenance, including leaders' salaries, will be taken over by the authorities. The Ministry is ready for the time being to help matters forward by continuing to offer capital grants to local voluntary organizations.

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### *The Administrative Costs of Voluntary Organizations*

168. The giving of assistance by statutory authorities to local youth groups according to their need, whether or not they are affiliated to one or other of the national youth organizations, is a comparatively straightforward matter ; and there is no doubt that authorities in their schemes for further education will make generous provision for this purpose. What is less obvious is the right attitude to adopt towards applications from the national organizations for help towards their local administrative costs ; the costs for example of running a county association, including the salary of one or more organizers where they are employed. Here the concern of the authorities will be to seek a right balance between—

(a) setting up an adequate organization themselves which will be at the service of all the youth groups in their area, and

(b) assisting some at least of the traditional youth associations to establish their own organization.

Quite apart from any other consideration, really good organizers are too few to be employed in covering the same ground and duplicating services.

169. One broad distinction to be drawn between statutory and voluntary responsibility is that, within a given area, the first is universal in a sense in which the other is not. For each voluntary association, therefore, to seek to establish a substantial universal pattern of organization with organizing staff in every county would obviously cause a good deal of duplication and make collaboration with them by statutory authorities difficult, if that pattern implied grants-in-aid. It will be for individual national organizations therefore to consider carefully which are the areas in which the number of their affiliated units and their responsibilities generally justify an approach to the authorities for assistance toward local administrative expenditure, and they may rightly be expected to be realistic in their plans and modest in their claims. There have been occasions when such claims have been pitched too high.

170. It is not a responsibility of the authority to pay the salaries of the organizing staff of the voluntary organizations. But where, as a result of the enterprise and convictions of a particular organization, funds are raised and staff is appointed, the authority should be ready to contribute in relation to the responsibilities and justifiable expenditure of the association in the area.



*Possible Lines of Development*

171. There are thus several lines of development which a local education authority can pursue in promoting a lively and comprehensive youth service.

(i) The provision of a recreational side to activities of evening institutes and similar local colleges of further education, including county colleges when they are established.

(ii) The establishment of independent clubs. There has sometimes been a tendency to describe clubs established by authorities as "youth centres". But where they are simply self-contained clubs, it seems better to use the old-established and less pretentious name, and reserve the new term for a new purpose. Incidentally, the majority of clubs promoted by the authorities are in fact voluntary institutions, in that they have independent management committees who are responsible in the first instance for the club's maintenance, and are given assistance according to their need by the statutory authority on the same lines as other voluntary organizations.

(iii) The establishment of "youth centres"—premises which can be used regularly or for special occasions by individual clubs, cadet corps, scouts, guides, and brigades according to their particular needs for accommodation. The emphasis in this use of the term "youth centre" is on the hospitality of a building given to different organizations rather than on a corporate organization specifically identified with the building.

(iv) The provision of assistance to voluntary organizations—through the services of teaching and organizing staff, use of premises and equipment, grants-in-aid, and the many other ways which have contributed so greatly to their work in recent years.

(v) The provision of playing-fields, camps and camp sites.

(vi) The encouragement and organization of short training courses, conferences, festivals, inter-club activities, rallies, and any other arrangements by which standards may be improved and opportunities increased.

The youth service in its present form is still very much in its infancy, and it is well that we should continue to experiment in all these directions.

*The Contribution of Part-time Workers*

172. We hope and believe that greater opportunities will open up in the future for those who have the will and are endowed with

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the gifts to share in training the younger generation—or rather in helping the younger generation to train itself. It is a responsibility of the local education authorities to discover men and women who have these qualities and to guide them to their appropriate place in the youth service. Few men or women are fitted to give full-time active leadership to a youth club throughout the whole of their professional lives; and the full-time leader has a great advantage if he is also equipped to move about and take up other employment within the social and educational field. This is not to depreciate but rather to emphasize the importance of his job. The training of full-time workers and the desirability of the universities' sharing in it, was the subject of the Ministry's recent Circular 53, and it is not proposed to discuss such training here. The youth service has however always depended upon and will continue to need the services of part-time workers; and their continued enlistment in the service of youth is of the greatest consequence.

173. The war was responsible for thinning the ranks of those thousands of men and women whose form of public service it was to give an evening or two each week to the youth organization of their choice. There is a present opportunity for the authorities and the voluntary associations in their area to combine together, not in the interests of one organization, but on behalf of all, in a campaign to enlist the services of men and women who have qualities of leadership and a liking for young people, and who would be ready to spend a few hours each week in their company.

### *Short Courses for Youth Leaders*

174. One of the most useful ways in which authorities have assisted progress in the past has been through the short training courses for youth leaders which they have organized themselves, or with which they have assisted other organizations. Short courses of this kind, concerned with specialized activities or with general responsibilities in the youth service have been held during the war by the Ministry, the authorities, and the voluntary organizations. It has been the general experience—especially when these courses have been residential—that they have contributed materially not only to the raising of standards and the pooling of ideas, but also to a greater sense of fellowship and understanding among those engaged in the work who live in different districts and are faced with rather different problems. It is especially useful for newcomers to the work to attend these courses.

*The Services of Members of the Teaching Profession*

175. During the war a great many members of the teaching profession have played a part in the youth service, for example, in providing leadership in clubs held at their schools, and in meeting the sudden demand for more cadet officers, which arose early in the war. In many cases their enthusiasm and goodwill led them to give up more evenings in the week than is normally desirable. "Who will be there if I'm not there?" was the question which they, like many other volunteers during the war, found it difficult to answer. When the supply of teachers is more adequate it will be necessary to consider other and less strenuous ways of using the talents of those among them who have a bent for club work. The alternatives are :—

(i) a teacher may make up full-time service by a division of work between school and club, so many hours being given to each ;

(ii) a teacher may be seconded to a full-time youth service post for a period, or leave teaching for full-time youth work with the intention of returning to teaching later on. An arrangement whereby some teachers devoted a period of years to full-time club work while in their twenties or thirties might not only secure a succession of the right kind of leaders, but also return to the teaching profession men and women who would make better teachers and heads of schools as a result of their experience. Such a transfer of duties will be made easier by the fact that no teacher need now lose superannuation rights by being employed partly or wholly in grant-aided youth service, whether in the employment of an authority or of a voluntary organization.

*The Importance of High Standards in Club Activities*

176. In Appendix VIII an attempt has been made to put together a specimen list of possible club activities, in which some leaders at all events may find something new and worth a trial. The list is offered with a certain diffidence in view of the excellent suggestions that are already put out from time to time by authorities and voluntary organizations. The "Youth Leader's Handbook" published recently by the Birmingham Education Authority, and containing a substantial bibliography, is an admirable example of its kind. Incidentally, it is obvious that high standards of performance must be maintained in whatever is attempted. Whether in physical exercises, craftwork, dancing, music, or any other activity, the shoddy and superficial must not go unchallenged by the best. There is nothing better that we can do for young people than to give them a sense of personal pride in maintaining a good standard of performance, below which they will not willingly let themselves go, whatever their work may be.

#### IV—TRAINING OF TEACHERS FOR FURTHER EDUCATION

177. AT PRESENT only a small proportion of those engaged in further education have received instruction in the art of teaching. Courses leading to qualification as a teacher of certain women's subjects are provided by the City and Guilds of London Institute. And these include a test in craft skill as well as in knowledge of the theory and practice of teaching. A small number of full-time teachers in technical colleges have passed through the university training departments or hold diplomas in education, and the Ministry has for many years been concerned with the training of art teachers.

These arrangements, although a valuable contribution to the establishment of a trained teaching service, cover only the fringe of a very wide field, and it is the Minister's intention that greatly increased facilities should be provided for the training in teaching methods of those engaged, or wishing to be engaged, in colleges of further education. Such training is fully discussed in the McNair Report "*The Training of Teachers and Youth Leaders*".

##### *The Teacher in Senior Technical and Commercial Colleges*

178. In a few selected areas training colleges for technical teachers are being established as internal units of large technical colleges. At first these will operate as part of the emergency scheme described in Circular 55, and recruitment will be limited to ex-Service personnel and others who have been engaged in National Service. The organization so set up will, however, form a permanent feature of the national provision for teacher training. The courses followed will lead to certificates having parity with those awarded at other training colleges. At these colleges, as distinct from other training colleges, students will not, in general, be instructed in the subjects which they are to teach. They will be required to have obtained suitable qualifications in their subject before entry; and their training will be directed mainly to their development as teachers of their subject. Arrangements will, however, be made—through an extension of the course—to enable the prospective teacher to improve his special qualifications by a refresher course.

##### (i) CURRICULUM

179. THE CURRICULUM will have the general layout of that recommended in the McNair Report. There will be instruction in the general principles of education and class teaching which are common to all teacher training courses, together with a special study of further education and its organization—local, regional and national—and the general outlook and interests of the adult student.



180. Following this, there will be instruction in the application of general teaching principles to the problems of teaching methods peculiar to the various groups of subjects taught in technical colleges, e.g., engineering, commerce. At this stage the prospective teacher will also study the history, structure and place in the national system of the trades, industries, professional and research organizations.

181. A third phase will be that of teaching practice. This phase is obviously vital, and it pre-supposes the co-operation of authorities, principals and staffs of the further education institutions in which the presence of "student teachers" will be a new phenomenon.

182. The association of the training college with a large college of further education will clearly be a great advantage. But one college in a region cannot provide all the facilities required for teaching practice, and smaller institutions must be prepared to take their share of responsibility in training the future teacher. Only in this way, when courses are of a highly specialized character, can experience in teaching the many diverse subjects and crafts be obtained by the novice. The spreading of teaching practice throughout a large number of establishments will benefit the training college by keeping it in close touch with developments and current practice in the various teaching institutions; while these will also profit by being placed in contact with an organization giving special attention to teaching methods.

183. In the emergency scheme, the curriculum above outlined for full-time students will occupy six months, with an extension to twelve months if the student requires to revise or extend his knowledge of his technical subject. As with other emergency courses, the teacher will be expected to undertake further studies during his early years in teaching service. Teachers trained under this scheme will be regarded as *qualified* teachers.

#### (ii) TRAINING COLLEGE ORGANIZATION

184. TECHNICAL EDUCATION must continue to depend to a considerable extent on part-time teachers engaged in industrial, commercial or professional work, in order that the instruction shall have the closest possible link with working conditions. The training colleges will provide part-time courses for such teachers or for persons who propose to become part-time teachers. This part of the work of the training colleges will be of equal importance with that of training the full-time teacher. It is intended that part-time courses, spread over suitable periods, should lead to qualifications similar to those obtained through the full-time course.

185. The inauguration of these training colleges will constitute a new phase in educational provision. They will not only provide a stream of qualified teachers suitable to the needs of certain branches of further education ; but they will be centres of educational research, and should play an effective part in inspiring the teaching in technical and commercial colleges as a whole. The establishment of these training colleges is not intended to displace the work in teacher training which already exists, or to render unnecessary the short courses or lectures which have been arranged in the past by many authorities. For a long time the training colleges will meet only a part of the need for trained teachers ; and it is essential that the authorities should arrange a variety of part-time courses for their own teachers and co-operate with surrounding authorities under regional arrangements. Recent experiments in this direction indicate that there is a substantial demand for such courses and a keen appreciation of their value on the part of the teachers.

### (iii) COUNTY COLLEGE STAFF

186. THE PROBLEM of training teachers for work in county colleges needs special consideration. The experience which will be gained by the emergency colleges in the training of technical teachers, and by the universities in the training of youth leaders, will be most helpful, but it will be necessary to make special arrangements for the general training of the county college teacher. His working conditions are likely to be different from those in any other educational establishment. Attendance at the colleges will be compulsory, the students will be at a critical age, and their educational needs will, in the majority of cases, be quite distinct from those of pupils in full-time secondary schools. Hence, teaching in county colleges will require a new technique, and special methods of planning the curriculum and of introducing the young people to the studies, activities, or topics that compose it.

187. The question of the selection of teachers for county colleges will also assume major importance. They must not only be academically well qualified but must have a sympathetic understanding of the outlook of the students and the conditions under which they work and live. Experience outside the academic world, for example in industry or in youth organizations, will therefore be particularly desirable.

### (iv) ART TEACHING

188. THE NORMAL qualification for the teaching of art is the Ministry of Education's Art Teachers' Diploma. The requirements for this diploma are a general education up to school certificate standard, the passing of the intermediate examination of the

Ministry in art and crafts, and of the examination leading to the award of the National Diploma in Design. Study for these examinations may take place in any art school or college ; and a four-year course of instruction is normally required. Following this course it is necessary to complete a year's course in the principles and practice of teaching at one of a number of recognized institutions. There is, and will remain, a need for teachers and instructors in art and crafts who have not obtained the art teachers' diploma, but who have by other training and experience achieved skill and distinction and who are eminently qualified in their subject but have had no opportunity to teach. Authorities could do a great deal to enable creative artists such as these to become competent part-time teachers by arranging courses for them in teaching methods.

#### (v) TRAINING FOR ADULT EDUCATION AND THE YOUTH SERVICE

189. THE MINISTER's general attitude towards training for work in this field is set out briefly towards the end of the section on Organization and Staffing in Chapter III (paras. 87-101 and 164-175). It envisages an increasing fluidity in the employment of teachers, youth leaders, and community centre wardens, so that they may contribute to the different aspects of the educational and social services, according to their abilities and interests. Policy in regard to training must clearly follow suit, and be sufficiently comprehensive to enable men and women to move around in this way.

190. There is a comparatively small but growing number of teachers who give their whole time to adult education. Most of the staff in this field, however, are part-time teachers who employ the rest of their working time in schools, colleges, and universities or in some different vocation.

191. In the past all adult education teaching staff have been selected as being qualified in the subject-matter they wish to teach ; but it has not been customary to require any special training in method. A number of courses in the technique of adult teaching have been conducted in the past by the universities and the authorities, and the Minister wishes to encourage an expansion in their number and in the available opportunities in adult teaching practice for teachers and others who possess a variety of subject knowledge and experience, and a readiness to give some part of their time at least in sharing them with other men and women. Taking a long view, the problem of adding to the number and quality of teachers in

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adult education is a part of the wider problem of increasing our national teaching resources, so that from amongst them those with a bent for adult teaching may be encouraged to engage in it. The short-term problem is to mobilize men and women in the community who are already trained or experienced in their subject, whatever it may be, to provide practical courses enabling them to make their knowledge available to others. The new further education regulations envisage that university bodies will undertake the training of teachers for those branches of adult education which are their special concern.

192. Training courses for full-time workers in the youth service are conducted by certain of the universities and national youth organizations. In the Minister's view, courses of training for full-time youth leadership should so far as possible help to equip those who undertake them not only for youth leadership but also for other kinds of social and educational work, thus encouraging mobility within the whole field and improving the individual's prospects of a full, progressive and satisfying career. (See Circulars 53 and 116.)

193. The Ministry's present contribution to the training of full-time leaders consists in giving financial recognition to the one-year courses conducted at the universities, to which mature students who are already well qualified by education and experience are admitted. The teaching profession undoubtedly has a special contribution to make in providing leaders for the youth service. As the supply of teachers for the schools increases, it will become more practicable to arrange for suitable teachers to be transferred to the youth service for a period as described above (paragraph 175).

194. At that time also it may well be possible for certain teacher training departments and colleges to include youth service in their curriculum, and in co-operation with the youth organizations to provide opportunities for practice in club leadership during the period of training.

195. The importance of part-time leadership and the special place of the voluntary worker is emphasized in the concluding paragraphs of the section on the youth service. Authorities and voluntary organizations alike will receive every encouragement from the Minister in the arrangements they may make for enlisting the services of part-time leaders, and for improving their efficiency by means of training courses.



## V—PLANNING THE ENVIRONMENT

## (i) SOME GENERAL CONSIDERATIONS

*Necessity of Social Surveys by Local Education Authorities*

196. SO FAR this pamphlet has been concerned to suggest the scope of further education as it might be interpreted in our future public service of education, and to make a plea for a broad and liberal conception of education—a synthesis between the utilitarian and the cultural—so that a wide choice of educational opportunities may be brought within range of the imagination of all. It remains to consider some of the problems of accommodation inherent in this very comprehensive plan. All that can be attempted is to suggest certain principles which appear to be capable of general application. Even these may sometimes appear remote and academic to local administrators who must build upon foundations as they exist in their own areas.

197. A starting-point for determining the nature of future development must necessarily be a methodical investigation of the distribution of and the social and occupational characteristics of the population in the area of each authority. While such local surveys have occasionally been attempted in the past, they have rarely been tackled with the thoroughness that will be necessary if plans for further education are to be adequately prepared.

*Increase of Day-time Studies*

198. In the session 1937/38, 1,297,227 students attended evening classes of all kinds conducted under the regulations for further education. Only 102,550 attended full-time or part-time classes held during the day. It was usually safe to assume that if accommodation in a college of further education was adequate for evening classes, it would be more than sufficient for the needs of day-time students. But the proportion of day to evening classes is now increasing rapidly, and this change is of great consequence. Other things being equal, day-time study calls for less accommodation than evening attendance. One whole day may, in fact, be taken as the equivalent of two or three evenings in the week. Against this apparent saving of accommodation must be set the expectation that there will be an increased demand for further education of all kinds, and that the courses for which students are released for day-time study may be developed more intensively than corresponding courses at evening classes. Day-time study is likely to increase, but evening attendance will obviously continue on a substantial scale.

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### *The Ultimate Goal*

199. In 1938 about 25 per cent. of all evening students were below the age of 16 years, and a further 20 per cent. were aged between 16 and 18. The raising of the school-leaving age and the introduction of compulsory attendance at county colleges will therefore be a dominant consideration in the future planning of evening classes, inasmuch as these new measures affect approximately half of the present evening class students. Against the probability of reduced demand for evening class work with a vocational objective, must be set the likelihood of a greater call for other kinds of evening classes, and for informal leisure-time opportunities, including activities that are complementary as well as supplementary to day-time studies.

200. These figures suggest factors to be taken into account in planning accommodation, but do not offer concrete *data*, and to that extent plans must be flexible and capable of adaptation. The one direction in which a close estimate is possible is in planning the county college. It is suggested therefore that authorities should frame their schemes of further education comprehensively so as to include provision not only for development of existing further education activities, but also for complete and immediate establishment of county colleges, and work toward that ultimate goal. Such a method of approach would allow steady expansion of accommodation to take place along generally agreed lines, and would ensure that whatever was done to meet educational and social needs in the immediate future would constitute an instalment of a comprehensive plan.

### (ii) ORGANIZATION OF COLLEGES OF FURTHER EDUCATION

#### *Relationship of County Colleges to other Educational Accommodation*

201. In preparing for county colleges it will be necessary to keep in mind the wide range of interests and aptitudes among adolescents. The aim will be to secure for all students a steady development towards a balanced adult life. Ways to achieve this will be many and varied. The task of finding them will be most difficult in the case of students without any definite interest to supply a ready motive for purposeful study. A good deal of experiment will be needed both in content and method if compulsory attendance is to be a fruitful and stimulating experience for all.

202. County colleges will take their place within the environment of the local colleges of further education, which will provide where necessary—in addition to the compulsory day-time activities—full-time vocational courses for young people under 18; and part-time day and evening courses and activities of all kinds, both vocational and general.

203. In the large urban areas the pattern will be that of branch colleges of further education linked with a larger central college. In every case the county college should be independently controlled, and enjoy a corporate life of its own. At the same time the branch colleges must have a close association with the central college, so that the students may be able to pass forward at the age of 18 to more advanced studies. Some county college students may have highly specialized vocational aims, and for them it will be necessary to make arrangements for transfer either to a special county college or to the central college. It is not expected, however, that these numbers will be large. Every attempt should be made to provide for the varied needs in the local colleges.

204. In the smaller towns the demand will normally justify one college for further education. The premises should be able to accommodate not only the county college, but also a range of other further education courses and activities to serve both young people and adults. Students requiring advanced instruction, or highly specialized studies involving expensive equipment and special staffing, should normally be transferred to the nearest regional college.

205. For very scattered rural communities, residential county colleges may be necessary. In other rural areas, the village college will provide a good solution, with some residential accommodation attached to it to meet the needs of those young students for whom compulsory day release cannot be operated in the normal way. The benefits to be gained from a period of residence in a stimulating educational atmosphere and in the society of other young people make it desirable to experiment in opening up to boys and girls from the towns the possibility of substituting for some part at any rate of their weekly county college attendance a residential course at a college in new surroundings.

206. It will thus appear that the different kinds of colleges of further education required are :—

(a) *Central Colleges of Further Education.*—In large urban areas these central colleges will provide for organized courses at higher grades ; for courses requiring large and expensive equipment, or laboratories with highly specialized equipment ; and for courses serving comparatively small numbers of students. In the largest urban centres there may be a group of central colleges for art, commerce, technology, liberal studies, music and drama ; or with any other bias that may be appropriate to the locality.



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(b) *Branch Colleges in Large Urban Areas.*—These colleges will make provision for the educational activities of those under 18 appropriate to the area. The county college will be housed in the same group of buildings, and may indeed be the nucleus from which many of the activities of the college will develop. Vocational courses at these colleges and at the central or regional colleges should, so far as may be necessary, have a common basis in order to make transfer at a later stage easy.

(c) *Local Colleges of Further Education.*—The needs of a small town will normally be met by one local college of further education, with the county college included within its scope.

(d) *Rural Areas.*—The further education institutions which will best serve the needs of the different rural areas must necessarily vary a good deal. Residential colleges, village\* colleges, combined community and youth centres, small general colleges of further education, village halls, all these will have their place in any comprehensive plan of rural education. What is especially important in conducting educational experiments in the countryside is always to provide a two-way service: bringing students together at appropriate centres, and sending staff out to the villages to strengthen their leadership and local activities there. Some of the problems involved have been touched upon in the section dealing with the needs of the countryside.

207. The emphasis on experiments in the provision of further education for rural areas is not intended to imply that there should be no experiments in urban areas. In the latter areas, however, the main framework can be defined fairly clearly, but there is scope for experiment within that framework, *e.g.*, in securing the advantages of short residential courses as part of the provision of county colleges.

\*NOTE.—The village college is *not* a secondary school with one or two rooms added for further education: it is an establishment planned as a community centre for young people and adults in such a way as to accommodate, in addition to further education activities, a secondary school. The secondary school and community centre should have separate entrances, and the combined staff should be selected on a specialist basis so that both the school and the further education activities can be adequately served by suitably qualified teachers.



*Organization in Relation to Size of Population*

208. In the suggestions that follow, an attempt is made to apply the organization outlined above to the needs of different areas according to the density of population to be served. Such an attempt may be useful at least as a yardstick and a basis for local discussion.

<i>Population to be served</i>	<i>Suggested scheme of organization</i>
(i) Dispersed populations below 10,000 in rural areas	Small college, with residential facilities and a range of further education and social activities including county college provision.
(ii) Populations of 10,000 to 25,000 within a radius of 5 to 10 miles	Small local college of further education providing a limited range of vocational and general courses and activities for adults and young people, including all county college provision.
(iii) Populations of 25,000 to 50,000 within a radius of 5 to 10 miles	A local college of further education to provide a wide range of further education of every kind, with county college in the same group of buildings.
(iv) Populations of 50,000 to 100,000 within a compact area	A central college for further education, having a wide range of courses with two or more local colleges, including county colleges.
(v) Populations of 250,000	A central college or group of colleges with three or four local colleges—including county colleges.
(vi) Populations of 500,000	A central college or group of colleges with six or more local colleges—including county colleges.

209. These colleges will not make complete provision for further education. Additional centres will be needed for adult education ; and such general and social activities as take place in these colleges will be supplemented as required by appropriately dispersed provision for youth activities, for social and recreative facilities, and for community centres. Where it is necessary to provide residential facilities for sparsely populated areas and for certain occupations,

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it is assumed that, so far as may be necessary, this provision will be based on the co-operative efforts of more than one authority. In the smaller centres, the problem of passing forward small numbers of students for certain vocational courses may be one of some difficulty. It can be solved effectively only where regional, and even national, arrangements have been fully worked out.

### (iii) THE LOCAL SURVEY AS A BASIS FOR PLANNING

#### *Methods of Local Survey—Social, Industrial, Commercial*

210. PROBLEMS of accommodation are essentially local matters, and a little local knowledge will go a good deal further than much central guidance. To clarify this local knowledge, a survey of the industrial and commercial situation in the area of each authority is an essential preliminary to the preparation of schemes of further education. Starting with matters of general significance for the whole field of further education, the survey will include

(1) Analysis of the population, both male and female, according to age distribution and the proportion gainfully and not gainfully employed.

(2) Geographical distribution of the population ; whether the residential area is compact or scattered, and whether transport facilities are adequate or not.

(3) A general survey of existing educational and social facilities for young people and adults of every kind, and an analysis of student enrolments.

(4) An occupational survey of the area, noting any special characteristics, such as a marked concentration or diversity in employments, the existence of small but important occupations, and any tendency for occupational groups to develop their own social organizations.

From this general basis it will be possible to proceed to the investigation of the factors affecting the provisions of vocational education on the one hand, and general and social education on the other.

211. For the planning of vocational education, a survey of industrial and commercial conditions is indispensable, and in this connection, a report prepared by P.E.P. (Political and Economic Planning) in 1939 on "The Location of Industry"—though not concerned directly with educational problems—contains a valuable regional summary of industrial location. This report should provide a useful basis for a survey of the educational needs of workers in different occupations. For our present purpose, the most interesting feature of the report is the statistical summary of

the industrial and regional distribution of the occupied population. This summary was reproduced in diagrammatic form in Appendix II of "Youth's Opportunity".

### *Classification of Occupational Groups*

212. Using the material given in the P.E.P. Report, it is possible to adopt a threefold classification of the major occupational groups, as follows.

(i) *Occupational groups distributed widely and with a fair degree of uniformity*: Commerce and Distribution, Professional, Government and Defence, Utilities, Transport, Catering and Personal Services, Domestic Service, Building (including woodworking), Food and Tobacco, Printing and Paper, and (although not included in the diagram) women mainly occupied with household duties.

(ii) *Occupational groups distributed widely, showing marked regional concentrations*: Agriculture, Metal Industries, and Clothing.

(iii) *Occupational groups not widely distributed, but showing marked concentration in some of the regions*: Mining and Textiles.

213. From this broad classification, the following general statements can be made about the probable duties of the authorities in providing educational opportunities related to these occupations.

*Class i.* All authorities may be expected to make some provision in each of these groups. This may of course be small in scale and elementary in character where small authorities are concerned, or where, as in most county areas, the population is very scattered.

*Class ii.* While all authorities may be expected to make some provision in each of these groups, this would only be highly developed in areas which included substantial concentrations of employment in any one of them. The responsibility of the counties for agricultural work, and of certain large urban areas for the metal industries and for clothing, will be readily recognized. Regional co-operation between adjacent authorities in regard to these occupations is important.

*Class iii.* Educational provision may be expected only in those regions where these very marked concentrations occur, and may thus call for special arrangements of a national character, enabling students to pass from many areas to a few centres. Such arrangements will demand co-operation between authorities of a more elaborate kind than that required under class (ii).

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214. Following this very general diagnosis, the next stage calls for a more detailed analysis of the local situation which might be made on the following lines.

(a) A further analysis of the characteristics of *each* of the principal industries and occupations, including :—

- (i) number gainfully occupied.
- (ii) proportion of males to females employed in the various age-groups.
- (iii) proportion of juveniles to adults employed.
- (iv) estimated annual entry to each of these industries and the occupations of which they consist.
- (v) apprenticeship or other training arrangements or requirements, and welfare provision for each industry and for the separate occupations within them. Arrangements made by individual firms might be included in this part of the inquiry.

(b) An estimate of the area of recruitment for the principal occupations.

(c) A critical survey of class enrolments over a period of years in the light of information secured above ; the analysis to be made departmentally for day and evening classes separately, and to aim at bringing to light the strengths and weaknesses of earlier schemes of vocational training.

(d) Consideration of regional problems and if possible demand for courses at national level.

(e) An estimate of the area of recruitment appropriate to different establishments and various courses.

215. The area of recruitment calls for some comment. Most of the colleges will have several catchment areas differing in extent according to the subjects or the stages of the courses undertaken. Broadly, the more specialized the course, the farther will students be willing, or inevitably obliged, to travel to attend it. To define with any accuracy the distances which students can reasonably be expected to travel to attend particular establishments or courses is among the most difficult tasks of the educational planner. That some attempt at definition should be made is however obvious enough, and constitutes indeed the essence of the regional consultation, for example, between county and county borough authorities, called for in the Education Act of 1944.

216. The procedure suggested above includes a good deal of work with which authorities have had long acquaintance. Many of the courses which such a survey will show to be necessary are



already provided ; some indeed have been welded into compact departments in the colleges of art, commerce, and technology. However, in the past, workers in many of the smaller industries have been either wholly ignored or very inadequately served in regard to courses at technical colleges. Their needs do not permit of easy solution, but Appendix III suggests ways and means of overcoming some of the difficulties of providing for small occupations, by grouping similar crafts in combined courses.

### *General and Social Educational Provision*

217. For the planning of general and social education it will be necessary to pursue the survey on the following lines :—

(a) an analysis of adult and adolescent interests, and the various ways in which they find expression ;

(b) an analysis of the voluntary organizations and other non-statutory bodies operating in this field of education in the area ;

(c) an estimate of the areas of recruitment appropriate to the various establishments.

It may be found convenient to group interests under four heads—*theoretical, practical, linguistic, and social*. These are not competitive or mutually exclusive groups, but they have their special requirements as regards accommodation and equipment, and they tend to differ in respect of the extent of the areas from which it is practicable to recruit.

218. A study of the facts disclosed by the survey, and discussion with voluntary organizations such as is required by the Act will suggest what provision needs to be made by authorities themselves ; what can profitably be left to other bodies ; how suitable voluntary organizations can be strengthened and assisted in their work ; and what forms the authorities' own provision can most appropriately take.

219. The area of recruitment in this field of education is generally more restricted than in vocational education. Some adult colleges and institutes do attract students from long distances by their reputation ; but for the most part an institute caters for a local membership. Community centres and youth clubs are essentially neighbourhood establishments.

### *Necessity for Better Premises*

220. The standards of buildings and equipment used in this country for further education of all kinds have often been lamentably low, and comparison with prevailing standards in other

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countries gives little cause for satisfaction. For the most part, further education has had to struggle against a depressing background of dark browns and greens, so dark indeed as to be almost indistinguishable. Shortly before the War, several new colleges of further education were built which, comely, light and dignified have set an example of what might be. Unfortunately, we cannot build as we would wish for some time to come, and it will often be necessary to provide temporary accommodation or to adapt existing buildings, or even to use on a part-time basis secondary school buildings and other suitable premises.

### *Estimates for Accommodation*

221. The completion of the survey of local needs will enable authorities to get out a tentative statement showing the chief deficiencies in regard to accommodation for educational and social purposes, and how they might be remedied. Proposals prepared before the war for new colleges and extensions should be reviewed in the light of the new educational structure ; and the most recent experience and knowledge of the principals and teachers affected, as well as that of the architects, should at an early stage be brought into the discussion of future buildings. The stages in the preparation of plans would seem to be :—

(i) an outline of the educational and social services to be provided;

(ii) an indication of how these services might be distributed among both existing and new establishments, and the characteristics of the new establishments required ;

(iii) the preparation of the detailed schedules of accommodation for each establishment which will be required by the architect in working out his plans, and by the Ministry in approving them. (Appendix IV suggests how schedules of accommodation may be prepared.)

222. The accommodation in most colleges of further education and kindred establishments will have certain features in common : large halls with stage, social, and refectory facilities ; gymnasia, baths, lecture theatres, workshops, libraries and reading rooms, offices and staff rooms, cloak rooms and lavatories, cycle and car accommodation. As is suggested in "Youth's Opportunity" (Chapter V), a general set of standards and conditions can be suitably modified by an authority, for use by various types of institution. There is much to be said also for the preparation of an analysis of accommodation covering the distribution within an area of such existing and potential facilities as gymnasia and

swimming baths, large halls equipped for music and drama, lecture halls and discussion rooms, workshops and refectories which will be available not only for those engaged in further education, but on occasion for the general public also. It would be a positive step forward in the direction of a wide participation by the general community in further education if it were made known that these facilities were available, not only to groups and classes, but also to the individual craftsman or student.

#### *Location and Grouping of Premises*

223. All buildings should be as central to their communities as possible ; and colleges which draw their students from a wide area must be near the transport centre. Community centres, adult education institutes, and youth clubs are typical examples of establishments which should normally be placed in compact centres of population or immediately adjacent to them.

#### *Playing-Fields*

224. A dilemma with which educational planners, like others, are faced is the difficulty of finding sites that are both central and spacious. Certainly, sites must allow for future extensions ; and if land is not available for this purpose, the possibility of adding a story or two later on should be borne in mind. A lofty building has at least the distinction of being a recognized landmark. Wherever possible, playing-fields should be provided on the same site as the college, though this is rarely possible to-day on central sites in towns and cities. In the large towns, the concentration of advanced studies at central colleges and the distribution of other colleges in the neighbouring residential districts offers the possibility of cheaper and more spacious sites and playing-fields for the scheme as a whole.

225. When selecting sites for new colleges or for community centres, the value of grouping to form a cultural and educational centre is obvious. Often enough, circumstances will not allow this refinement. But the grouping together, for example, of the library, swimming bath, colleges of further education, community centre, art centre, and health centre would clearly contribute to their influence both individually and collectively in the life of a town.

#### (iv) PLANS AND LAYOUT OF BUILDINGS

226. COMING now to more detailed considerations, a well-planned building will be characterized by simplicity and directness of design. To facilitate communication within it, the building

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should be as compact as possible. Simple and straightforward arrangements will usually be found to make for reduced first cost, and for convenience in use. The number of entrances and staircases should be kept to a minimum, but emergency and fire exits will of course be necessary in accordance with the codes of practice. The entrance hall should be reasonably large, well-lit, and have adequate space for the display of pictures, notices and small exhibition cases. Useful exterior publicity is gained by a display window and inset poster cases.

227. The simplest arrangement for a small college is the rectangular building, the corridor on each floor having windows on one side and a row of rooms on the other. According to the size and position of the building on the site, a staircase can be erected at the centre or at one or at both ends. This is a simple and compact type of building which lends itself to straightforward and economical construction. Its compactness may be retained, with increased accommodation, by arranging rooms on each side of a central corridor. This will be satisfactory, provided the corridor is sufficiently wide and high and not too long, and has large windows at both ends, so that ventilation and natural lighting are adequate. Both these arrangements have been much used on the continent and encourage free open planning of the rooms.

228. An L-shaped plan, consisting of two rectangular wings designed on the lines described, and with the entrance at the external angle, gives an economical and convenient arrangement for a somewhat larger college ; especially if the building is situated on a site where the best approach is at a corner. Alternatively, a single wing may be built out at the centre of the main rectangular block, to accommodate the hall, gymnasium, or workshops. This gives a compact T-shaped plan. A further development is to add short wings at each end of the main block to produce a plan that is shaped like either an E or an H. A cruciform plan is also adaptable if the site is suitable.

229. In a few large educational buildings, a plan has been adopted giving two squares with inner courts. This plan is not entirely satisfactory, if, as is usually the case, the hall is placed in the central part of the building. Ease of communication, especially for public use, is greatly reduced ; while the rooms in most frequent use are spread out widely over the site. Both from the point of view of economy of construction and convenience in use, either the rectangular L-, T-, or E-shaped plan is to be preferred ; that type being selected which will provide the required accommodation, and can be placed satisfactorily on the site selected for the college.



230. On very open sites, workshops may be accommodated in one-story blocks. This arrangement however, does not make for compact planning. Workshops and laboratories calling for heavy equipment can, in fact, be conveniently accommodated in wings of special construction—a method which, like the one-story blocks, makes it possible to isolate noisy activities which might otherwise be disturbing to other parts of the college.

*Provision of Buildings for Immediate Needs*

231. Side by side with the preparation of a comprehensive scheme of sites and buildings to house further education in all its aspects, every opportunity should be taken to make early provision for urgent needs where they arise. A simple prefabricated building provided at once for a youth organization, a community centre, or a village hall may make all the difference to the social and educational life of a community. At the present time when the staffs of authorities are hard pressed on every side, there is everything to be said for encouraging initiative by voluntary associations and the local community generally, in the preparation of plans to meet immediate social needs.

232. Whatever may be achieved in terms of a building programme in the next few years either in the erection of new premises or in the adaptation of old, much of the accommodation for our community education must inevitably be improvised. The achievements of the war years in housing the youth service have shown what can be done in difficult circumstances, and the same makeshift arrangements must be applied with equal determination to the needs of the adult community. In Appendix VI some suggestions are offered for meeting some of the difficulties of equipping and furnishing improvised accommodation.

233. The danger in improvisation is an insidious tendency to a lowering of permanent standards and an acquiescence in the second best. This can only be avoided by seeing that taste and imagination are mixed with our materials and give dignity to our handiwork.

APPENDICES

- I. SPECIAL OCCUPATIONS—EXAMPLES OF EDUCATIONAL FACILITIES.
- II. OCCUPATIONAL CENSUS (1931).
- III. LOCAL SCALE OF EMPLOYMENT OF YOUNG PERSONS IN RELATION TO EDUCATIONAL PROVISION.
- IV. PREMISES : SCHEDULES OF ACCOMMODATION.
- V. LIGHTING, HEATING AND VENTILATING STANDARDS.
- VI. FURNISHING AND EQUIPMENT IN ADULT CLASSES.
- VII. YOUTH CLUBS : ACCOMMODATION.
- VIII. ACTIVITIES FOR YOUTH CLUBS AND COMMUNITY CENTRES.
- IX. CIRCULARS AND ADMINISTRATIVE MEMORANDA RELATING TO FURTHER EDUCATION.
- X. BIBLIOGRAPHY—PART I. SELECTED PUBLICATIONS OF MINISTRY OF EDUCATION.  
PART II. GENERAL LIST OF REPORTS AND STUDIES.  
PART III. MINISTRY OF LABOUR CAREERS PAMPHLETS.

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## APPENDIX I

Examples of Special Educational Facilities  
for

## Certain Occupations

## INTRODUCTION

1. The following brief descriptions of methods of training and qualification in various occupations are examples only from a very wide field. They are intended to be typical of the methods in use in some of the more uncommon occupations, as well as in those better known. In certain groups, either where large numbers are employed or specialist sub-divisions are numerous, the general survey or summary is followed by a few examples of sub-divisions, *e.g.*, in the fields of engineering, agriculture, building, and in science.

2. In some occupations there is inevitably a certain measure of common interest for more than one main group, and in such cases, the main description is given under one group with a cross reference to the other group, *e.g.*, certain aspects of architecture and structural engineering are closely linked with both main groups of engineering and building.

3. The arrangement of the information given about each occupation is broadly an introductory paragraph or paragraphs on the scope of the occupation treated and the kinds and grades of personnel employed; followed by a summary of existing educational facilities, a note of any generally recognised standards of qualification and certification, and possible lines of development. The conditions in some occupations, however, render it impracticable to follow out this arrangement rigidly in each instance.

References to further or more detailed sources of information where available are given.

*Qualification and Certification*

4. For brevity, technological certificates of qualification issued by the Department of Technology of the City and Guilds of London Institute—which have a very wide currency—are occasionally referred to as City and Guilds (or C. and G.) Certificates.

Other abbreviations include :—

U.L.C.I. = Union of Lancashire and Cheshire Institutes.

E.M.E.U. = East Midland Educational Union.

N.C.T.E.C. = Northern Counties Technical Examinations Council.

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U.E.I.	= Union of Educational Institutions.
Inter.	= Intermediate stage of degree studies.
A.M.	= Associate Membership—the normal grade of diploma awarded after examination by various professional institutions : <i>e.g.</i> , A.M.Inst.C.E. = Associate Member of Institution of Civil Engineers. A.M.I.Mech.E. = Associate Member of Institution of Mechanical Engineers. A.M.I.E.E. = Associate Member of Institution of Electrical Engineers.
R.S.A.	= Royal Society of Arts.
B.C.C.	= British Chamber of Commerce.
M.L.N.S.	= Ministry of Labour and National Service.

5. More information on training for and conditions of work in various occupations dealt with in this pamphlet will be found in the M.L.N.S. pamphlets listed in (separate reference has not been made to these under the heading of each occupation) Appendix X.

## APPENDIX OF OCCUPATIONS

### LIST OF SUBJECTS.

Group I. Agriculture and closely associated employments.

- Section (1) Agriculture (General).  
(2) Food Technology.  
(3) Horticulture.  
(4) Meat Technology.  
(5) Milk Technology.

Group II. Building and associated employments.

Section (1) General Summary.

This deals briefly with courses of training in subjects used by contractors, supervisory staffs, skilled craftsmen ; and by such professional groups as quantity surveyors, building surveyors, building inspectors, sanitary inspectors, clerks of works, constructional specialists.

- (2) Architecture.



Group III. (A) Chemical Manufacture ; and (B) Chemical Process Industries.

Section (1) Brewing and the Fermentation Industries.

- (2) Coal Processing.
- (3) Fuel Technology. (See also Engineering).
- (4) Gas Industry.
- (5) Leather Manufacture.
- (6) Paint and Varnish Manufacture.
- (7) Petroleum Technology.
- (8) Pharmaceutical Manufacture and Pharmacy.
- (9) Plastics.
- (10) Rayon Manufacture.
- (11) Textile dyeing, bleaching, and printing.

Group IV. Commerce.

The general summary deals briefly with the following sections :—

Section (1) Professional (accountancy, banking, insurance, law, business administration, secretarial work (company), transport, statistics, and other types).

- (2) General Commercial subjects (*e.g.*, English, Economics).
- (3) Modern Languages.
- (4) Clerical.
- (5) Trade (distributive).

Group V. Engineering and closely related occupations.

Section (1) Engineering (General Summary).

- |                          |   |
|--------------------------|---|
| (i) Civil.               | (vii) Marine.                                       |
| (ii) Mechanical.         | (viii) Automobile.                                  |
| (iii) Electrical.        | (ix) Heating & Ventilating.                         |
| (iv) Naval Architecture. | (x) Structural.                                     |
| (v) Production.          | (xi) Refrigeration.                                 |
| (vi) Aeronautical.       | (xii) Fuel Technology<br>(See also Chemical Group). |

(2) Coal Mining.

(3) Watch, Clock, and Instrument Making.

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### Group VI. Other Industries and Occupations.

- Section
- (1) Baking and Flour Confectionery.
  - (2) Boot and Shoe Industry.
  - (3) Catering.
  - (4) Domestic Employment.
  - (5) Fishing Industry.
  - (6) Flour Milling .
  - (7) Furniture Industry.
  - (8) Gemmology.
  - (9) Glass Industry.
  - (10) Glove Making.
  - (11) Hairdressing.
  - (12) Laundering.
  - (13) Merchant Navy.
  - (14) Metallurgical Industries.
  - (15) Musical Instrument Manufacture.
  - (16) Needle Trades.
  - (17) Nursing and Kindred Services.
  - (18) Paper Making.
  - (19) Photography.
  - (20) Pottery Industry.
  - (21) Printing.
  - (22) Rubber Industry.
  - (23) Seed-Crushing, Compound, and Provender Manufacturing Industries.
  - (24) Textile Industries (Spinning, Manufacture, and Hosiery).
  - (25) Upholstery.

### INTRODUCTORY NOTE ON INDUSTRIAL DESIGN

#### *Scope of work and types of employee*

1. The importance of good appearance, not only in consumer goods of all sorts sold to the public, but also in such engineering products as machine tools, has been increasingly stressed of late years. Some continental countries are—or were—far in advance of us in this respect, as are the United States of America.

2. The employees, for whom the art school can usefully provide full-time or part-time training according to their particular needs and ambitions, may broadly be classified as designers and craftsmen. The former range from the independent free-lance, or from the art director of a large works studio, to the draughtsman engaged on repetition or adaptation ; the latter from the skilled pottery-modeller, glass-maker or milliner, to the machine operator who does not require more than a measure of taste and skill to enable him to do his work efficiently.

*General arrangements for training*

3. The art school generally provides a full range of training in both craftsmanship and design for the still substantial number of industries which manufacture goods entirely or mainly by hand methods. In the case of some machine industries, such as wall-paper manufacture, the art school deals mainly with designers and not to any great extent with craftsmen or operatives.

4. The handicraft industries of the countryside are looked after by the Rural Industries Bureau, who perform much the same kind of service in the country districts as do the art schools for the industries with which they are concerned at the larger centres of population. In some areas, such as the south-west, there is useful co-operation between art schools and rural industry organizers.

*Research. Future developments. Co-operation with Industry*

5. Art schools with live industrial courses and suitable equipment are constantly engaged in research on design, in the materials of the craft, or on methods of machine production. This is true of the ubiquitous industries such as printing, or painting and decorating ; and of localized industries such as pottery, glass, or silversmithing. Such work calls for technical and artistic research and experiment side by side, and may be carried out wholly in the art school—as in the case of silversmithing and jewellery at Birmingham ; or in co-operation with the technical college—as in the case of textiles at Manchester. In all cases, co-operation with industrial firms is likely to be essential—this is generally ensured by the appointment of suitable advisory committees, and co-operation with the technical colleges is also desirable.

6. In the case of a large number of industries, art schools can already make a useful contribution ; but there is always scope for development in line with new industrial practices and the introduction of new materials. The making by hand methods of models for machine production may be specially mentioned as a form of research and experiment in design which may develop in the future to an extent not hitherto realized.

7. The need for working closely with the requirements of architecture may be specially mentioned. The importance of the architect is considerable, not only in relation to the building trades, but also by reason of his influence on the design of fittings, decoration, furnishings and equipment of many sorts. The part which may be played by schools of architecture in research in design, especially when they are linked up with art schools, has great possibilities.

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### *Certification and qualification*

8. The Ministry's Art Examinations provide a National Diploma in Design in a wide range of branches of manufacture, hand and machine, such as dress design, woven and printed textiles, gold and silversmithing, pottery and glass. The examinations are so planned that while the artistic ability of the candidate is highly tested, he is also required to show a real understanding of the technique of production and a good knowledge of traditional and contemporary styles of design.

9. The City and Guilds provide Full Technological Certificates in a number of branches of industry such as printing, painting and decorating, and cabinet-making. These examinations include searching tests in the technique of the industry, with less emphasis on artistic ability than in the Ministry's Art Examinations.

10. The same industries are often provided for by both examining bodies ; and it is a fairly common practice for students who wish to have evidence of all-round ability to secure both the Ministry's and the City and Guilds' qualifications. Students of dress design and making, or of painting and decorating, may be quoted as examples.

11. In addition to those mentioned above there are national bodies which award diplomas and certificates in respect of particular branches of industry, such as the Institute of British Decorators for the painting and decorating industry ; and many regional examining bodies provide certification on a less ambitious level than that of the national schemes.

### *Industrial Design Council*

12. The Board of Trade have recently set up the Council for Industrial Design with the special object of improving the design of manufactured goods of every kind. The Council have set to work to encourage industries to form design centres for the promotion of new ideas, and for research into the requirements of world markets for the export trade. An increasing realization on the part of manufacturers that it is well worth while to pay attention to the appearance as well as to the functional aspect of their products should lead to demands by them that the best facilities for training should be available in the schools.

Improved staffing, equipment, and premises may then be needed in order to cater for the needs both of full-time students who hope to enter industry as designers, and of part-time students who are already employed in industry. A firm demand from industry for such facilities will no doubt be met with enthusiasm.



## GROUP I

AGRICULTURE AND CLOSELY ASSOCIATED  
EMPLOYMENTS

## AGRICULTURE AND HORTICULTURE

## INTRODUCTION

(i) A special reference is necessary to education for agriculture and horticulture. The boundaries between the responsibilities of the Ministries of Agriculture and Education as well as those between the responsibilities of authorities and the Advisory Service have recently been changed. The new arrangements are outlined below.

(ii) Under these arrangements the Ministries of Agriculture and of Education have a joint responsibility towards agricultural and horticultural education. The former is concerned with the adequacy, suitability, and efficiency of instruction in the theory and practice of agriculture and horticulture. The latter is concerned to see that agricultural and horticultural education takes its appropriate place in the framework of further education, including the Schemes which Authorities are now being asked to prepare. The Ministry of Education is also concerned with the efficiency of instruction in any subjects outside the theory and practice of agriculture and horticulture which may be included in Farm Institute courses. The responsibilities of the two Departments are set out in detail in their joint circular issued on 9th March, 1945 (Circular 25 in the Ministry of Education's series). A close liaison exists between the two Departments with the object of ensuring that there is no overlap.

(iii) Under the new arrangements the provision of agricultural and horticultural instruction in the higher stages continues to be the function of University Departments of Agriculture and Agricultural Colleges. While in the lower stages, it is the function of the authorities and of the National Agricultural Advisory Service. The arrangements are set out in the joint circular of the two Ministries issued on 28th August, 1946 (Circular 123 in the Ministry of Education's series), and may be summarized as follows :—

(a) Authorities will be responsible for :—

- (1) The provision and maintenance of Farm Institutes.
- (2) The provision of courses of instruction, theoretical and practical, for persons engaged in agriculture and horticulture.

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(3) The provision of instruction for domestic producers, that is to say persons engaged in agricultural and horticultural activities as private gardeners, allotment holders, and "back-yard" pig-, poultry-, rabbit- and bee-keepers.

(b) The National Agricultural Advisory Service will be responsible for the provision of technical advice and instruction to persons engaged in the agricultural and horticultural industries, including both advice and instruction to individuals and for demonstrations and lectures, not having the character of a progressive course, to groups.

(c) Authorities should bear in mind the importance of making provision under each of the heads (1), (2) and (3) above, and of providing adequate and suitable instruction (i) in making and repairing farm machinery, including training for lads in smithies ; (ii) in elementary farm book-keeping, and (iii) in the utilization of home-produced food, e.g., fruit preservation. Authorities will also be expected to include in their Schemes their proposals for providing financial assistance for students of promise who need such assistance, whether for attending a university department of agriculture or an agricultural college, or for taking advantage of any facility for agricultural or horticultural education provided by an authority ; and any proposals for aiding a university department of agriculture or an agricultural college.

### 1. AGRICULTURE

#### *Scope and Classification of Workers*

1. (a) University and other teachers, specialists (e.g., chemists, bacteriologists, agricultural botanists and zoologists), advisers, consultants, organizers, and farmers and farm-managers on a larger scale.
- (b) Farmers, smallholders, bailiffs, foremen and specialist workers.
- (c) The rank and file of agricultural workers.

#### *Present Educational Facilities*

2. For the higher levels a university education is generally necessary.
3. For the lower levels as in (b) the provision has hitherto been sparse and inadequate, consisting of courses at the agricultural colleges and farm institutes, which are relatively few in number ; and courses of lectures and demonstrations given by the advisory staffs of the various counties. Many more farm institutes are needed. Guidance in regard to the scale of provision and also in

regard to the types of courses to be provided in farm institutes will shortly be available in a report now being prepared by the Joint Advisory Committee on Agricultural Education. County colleges, with one day a week attendance or full-time attendance for eight weeks, will make some contribution to the training of agricultural workers, but they will not meet the whole of the need for part-time instruction ; and plans for further education should include the provision of part-time classes at convenient centres either in the evening or whenever possible in the daytime.

4. The foregoing observations in regard to county colleges and part-time classes apply also to the rank and file of agricultural workers who will need instruction in special skills, and in the use and care of agricultural machinery.

#### *Qualification and Certification*

At the higher levels, certification includes the B.Sc. (Agr.). At the lower levels there is at present no general scheme of certification, but some of the farm institutes award their own certificates for proficiency.

*References* : Report of Regional Committee on Higher Agricultural Education. (H.M.S.O.). Dairy Education in Great Britain. (Society of Dairy Technology).

## 2. FOOD TECHNOLOGY

### *Scope and Personnel*

1. Education in Food Technology—apart from the slender provision for the Meat and Milk industries, Sugar-making, and Flour-milling—is very much in its infancy in this country, where the subject has been considered of less importance than in America. But this branch of technical education is specially commended to the attention of authorities as one normally of great importance, but especially so at the moment—and possibly for some time to come—in view of the limitation of our food supplies, and the consequent necessity for making the most of our available foodstuffs in order to conserve the health and energy of the population.

2. The scope of the work and the categories of workers requiring training are as yet not well defined. Certain definite needs are, however, clear. At the higher levels a certain number of chemists, biochemists, and bacteriologists with training in the application of their knowledge to food processing and preservation will be needed. In the canning and processing factories some basic training will be required by those who may rise to be charge hands,

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foremen, or managers. In the case of managers, more extensive training may be desirable. The needs of the fish and poultry trades are more clearly defined ; and the training can, in a general way at least, follow the lines found suitable for the meat industry. But apart from industrial needs it is desirable that all people who handle food, whether in processing, in catering and cookery, in distribution, or in the home should have some simple basic knowledge of food technology.

### *Educational Facilities*

3. As much of the basic scientific background is common to several branches, there is no reason why a simple general course of Food Technology should not form part of the standard provision at most technical colleges. Attendance should be open not only to workers in the trade but to anyone with related interests, *e.g.*, housewives, domestic science students, nurses. At higher or more specialized levels, the provision will have to be regionalized according to the needs of the industry. As examples of what has already been done, the Smithfield Institute has provided for the fish trade part-time day courses for apprentices, and short refresher courses for fishmongers. At Manchester a full-time course for apprentices in canning factories has been arranged, but here the curriculum is still in the experimental stages.

### *Qualification and Certification*

4. For chemists and bacteriologists a good university degree is necessary, with subsequent training in the application of their science to food technology. For the rest, evidence of qualification can in part be secured by taking appropriate examinations of the Royal Sanitary Institute ; and the City and Guilds of London Institute grant technological certificates in certain special subjects such as Sugar Manufacture, Bread-making, and Flour-milling.

## 3. HORTICULTURE

### *Scope of Work and Types of Workers*

1. (a) University and college teachers, specialists (*e.g.*, chemists, mycologists, entomologists, plant physiologists), consultants, advisers, organizers, and commercial growers and managers on a larger scale.
- (b) Commercial growers and managers and foremen, workers and apprentices in parks and ornamental gardens, commercial gardens, and commercial horticulture including glasshouse production.



*Educational Facilities*

2. Higher grade workers are for the most part trained in Universities or in Agricultural or Horticultural Colleges. Suitable courses of training for farm superintendents and head gardeners are given at Kew, Edinburgh, Wisley, and the John Innes Institute, Merton. Specialists are often recruited from graduates in pure science who have had special training or experience in particular lines of horticultural science.

3. Facilities for training the other categories have been limited and inadequate. There has been no recognised educational scheme for training young gardeners except at the gardens mentioned above, and in connection with the parks administration of one or two of the larger cities. Commercial horticulture courses have been conducted at some of the farm institutes. These courses in commercial horticulture, however, in common with those for gardeners provide instruction for a relatively small number of people and cover but a small fraction of those entering the industry. There is need of a large increase in the number of such courses and also in the facilities for part-time instruction, particularly instruction of a specialist character, *e.g.*, for young learners in fruit-growing, crop production under glass, vegetable production. This can only be satisfactorily achieved by part-time day release, so that adequate practical instruction can be given.

The county colleges when established should give the opportunity for increasing the facilities for horticultural education for the 15 to 18 group, wherever there is any concentration of commercial growing, or where the number of students from parks and ornamental gardens warrants it.

*Certification and Qualification*

For the higher levels the B.Sc. (Hort.) and the National Diploma in Horticulture are desirable. For park superintendents the N.D.H. (Park Section) is necessary as well as the Diploma of the Institute of Park Administration.

## 4. MEAT TECHNOLOGY

*Personnel*

1. The workers requiring technical education are :—(a) apprentices, (b) salesmen and cutters, (c) foremen and managers, (d) market workers, (e) operatives in small meat sundries manufacture, (f) abattoir workers. Food inspectors, food supervisors, managers in the catering industry, and others similarly employed also need some training in meat technology.

*Educational facilities*

2. Throughout the country there is a great deficiency in provision for further education for the meat trade, except in

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London (Smithfield Institute), and a few provincial centres of the import trade, chiefly Liverpool and Glasgow. In every region suitable courses should be readily accessible. The Industry itself is becoming very much aware of the need for the technical training of its younger employees, a need which authorities must strive to satisfy. The provision of a complete range of facilities for the various sections of the trade—retail, wholesale, small sundries manufacture, storage and transport, abattoir work—may be necessary only in selected centres ; but specific sections will have to be catered for according to local needs. In this respect the provision of courses for retail trades should be part of the general technical provision in most technical colleges.

The establishment of a central National College for Food Technology (including meat), possibly in London, to cater for the highest grades of instruction and investigation, is under consideration.

### *Qualification and certification*

Certificates of qualification may be obtained by means of the following examinations :—

(a) The national Federation of Meat Traders' Associations award a National Diploma in Meat Technology covering a knowledge of the retail trade, small goods, slaughtering, and the wholesale trade.

(b) The Royal Sanitary Institute arrange examinations for

(i) Food Inspectors ;

(ii) Associateship of the Institute, suitable for persons qualified as stewards of institutions, food traders, butchers or abattoir assistants ;

(iii) Nutrition in relation to catering and cookery, suitable for such persons as food supervisors, canteen and hostel managers.

(c) The City and Guilds of London Institute (Department of Technology).

A syllabus is being arranged for an examination to qualify for corporate membership of the Institute of Refrigeration.

(d) The Co-operative Union.

An examination is available for Co-operative Society apprentices to qualify in meat commodity.

*Reference :* The most extensive provision of courses in Meat and allied industries is made at Smithfield Institute.

## 5. MILK TECHNOLOGY

### *Grades of personnel*

1. The personnel requiring training are all those engaged in the testing, control, processing and handling of milk after it has left the farm :—

(a) Scientists : Bacteriologists, Bio-Chemists.

(b) Processing and Control : Workers in manufacturing and processing plants.

(c) Distribution : Salesmen, shopmen, and roundsmen.

### *Educational facilities*

2. Bacteriologists, Bio-chemists, and other scientific workers are recruited from among University graduates after appropriate training in their specialist fields. For Group (b) a course following the syllabus of the City and Guilds of London Institute in Milk Processing and Control is desirable. In the past these courses have been conducted at only a few centres in the country—a very inadequate provision. Courses should be made available wherever there is a concentration of the manufacturing or processing industry. But apart from this, some aspects may need special treatment, e.g., ice-cream is a very popular and cheap “luxury” food, but very liable to contamination in processing and handling, and short courses for the very numerous manufacturers would be a public health insurance. Some of the training for Group (c) will be covered by general courses in the Distributive Trades ; but in addition to this, courses following the City and Guilds syllabus in Milk Handling and Distribution will be necessary. The distribution of milk is so universal that provision of suitable courses, not necessarily so extensive as that implied by the City and Guilds syllabus, should be arranged. The equipment required is not highly specialized, and should be within the means of most places. The problem of staffing is more difficult, and the co-operation of the industry and possibly of public health officials should be sought.

3. Courses leading to City and Guilds qualifications in Milk Technology are at present conducted at Chelsea Polytechnic, Smithfield Institute, and Yeovil Technical Institute.

### *Qualification*

4. At the higher levels, the needs of the industry seem to indicate the desirability of differentiation between (a) Milk Production and (b) Milk Technology, but the content and arrangement of appropriate courses have still to be considered. At the highest levels a University degree is generally necessary.

At lower level the City and Guilds Certificates in (a) Milk processing and Control, and (b) Milk Handling and Distribution provide adequate certification.

*References :* Report on Dairy Education, by the Education Committee of the Society of Dairy Technology. “Why not Make your Career with the Milk Marketing Board?” (Published by the Milk Marketing Board.)

## GROUP II. BUILDING AND ASSOCIATED EMPLOYMENTS

### 1. BUILDING AND ASSOCIATED EMPLOYMENTS

#### GENERAL SUMMARY

##### *Scope of Occupations in or related to Building*

1. The Building Industry consists essentially of firms operating as builders, building contractors, public works contractors, and specialist firms, together with the necessary skilled craftsmen and labourers. The main contractors in substantial building operations are usually drawn from among firms functioning as building or public works contractors, the specialist firms acting in such cases as sub-contractors. The range in the sizes of firms is considerable, the majority being small and tending to operate locally. This widespread character of the industry is one of its outstanding features, tending to mask its national importance as compared with other industries which show more marked concentrations, locally or regionally. (See also Civil Engineering, Structural Engineering.)

2. Closely associated with the industry proper are certain important occupations, mostly of a professional and semi-professional character. These are concerned with the design of buildings or with their equipment ; and with the control and supervision of building work, in accordance either with contracts and specifications, or with the requirements of building by-laws, local authorities, or government departments.

3. The Building Industry covers a great range of occupations, and is normally one of the largest employing groups in the country. The vast scale of post-war reconstruction will make great demands on the industry. Thus the education and training of existing and newly recruited personnel, from the craft level to that of the employer and manager, is of outstanding and national importance. To this development Further Education should be able to make a great contribution.

##### *Grades of Personnel*

4. A broad classification of the industry itself would include the following occupational types :—

- (a) Builders, Contractors, and Specialists.
- (b) Managerial and Supervisory Staffs.
- (c) Skilled Craftsmen.
- (d) Labourers.



5. A similar classification of associated occupations would include :—

- (a) Architects. (See separate section on Architecture, following).
- (b) Quantity Surveyors.
- (c) Building Surveyors and Inspectors.
- (d) Technical Staffs of Municipal and County Authorities, including Sanitary Inspectors.
- (e) Clerks of Works.
- (f) Specialists and Practitioners, *e.g.*, in Structural Engineering and other specialised forms of construction.

#### *Provision of Educational Facilities*

6. Full-time courses (pre-employment) are provided by means of :—

- (i) Secondary Technical Schools of Building, and the Building forms of general Secondary Technical schools.

On the basis of discussions with the industry and the Building Apprenticeship and Training Council, these schools have been rapidly expanded during the war, in association with the National Apprenticeship Schemes which are being established by the industry. The aim is to double the present intake, which was approximately 5,500 in May, 1945. This will cater for about half of the total intake of apprentices to the fully expanded industry, the remainder coming from other types of schools.

- (ii) Full-time Courses (Senior) in Technical Colleges.

These are two- or three-year courses. They are generally approved for the award of National Diplomas in Building, and prepare their students for employment in junior staff posts with building firms at about the ages of 18 or 19 years. The output from these courses has been small, and the aim is to increase the provision considerably. Discussions are proceeding with a view to increasing the openings for employment and further training. These courses also offer some preparation for similar employment in the associated occupations such as architecture, surveying, structural engineering, municipal and county engineering.

#### *7. Part-time Courses*

These may be conducted in the day or in the evening ; or they may include both day and evening attendances. They may be conveniently divided into (i) Craft Courses ; (ii) General Building Courses ; and (iii) Professional and Specialist Courses.

## (i) Craft Courses.

Four-year (part-time) courses are desirable in all the principal building crafts. A considerable expansion in all these courses will be necessary, but particularly so for the smaller crafts, which may require special regional or national arrangements. All these courses prepare for the craft examinations of the City and Guilds of London Institute. In connection with the new National Apprenticeship Schemes† which have been established by the industry and by some of the associated crafts, there is an increased demand for part-time day classes. This is likely to call for considerable developments in the accommodation available for day-time instruction, particularly in workshop accommodation. The problems which will arise both in respect of instruction and accommodation are briefly discussed in Education Pamphlet No. 4, "Building Crafts".

† *References* : Report on Training for the Building Industry. (H.M. Office of Works.)

First and Second Reports of the Building Apprenticeship and Training Council. (H.M.S.O.)

## (ii) General Building.

The majority of these courses are approved for the award of Ordinary and Higher National Certificates. While the courses preparing for the Ordinary National Certificates offer, in the main, a basic preparation for more advanced studies, the courses preparing for the Higher National Certificates offer a wide choice among a considerable number of optional subjects. This is necessary because of the great variety of students generally found in these courses. These facilities are of the utmost importance to isolated students scattered throughout the provinces, who are unable to attend the special courses which it is only possible to conduct in the largest urban areas. Along with the general expansion of the industry there should be a proportionate expansion of general building courses, and improvements in the necessary accommodation and equipment.

## (iii) Professional and Specialist Courses.

There remain a number of small but very important occupations, in or associated with building. The annual recruitment into these in most localities is generally insufficient to support entirely separate and distinct specialist courses. Where knowledge of building technology or of building usages forms a substantial part of their professional preparation, it has been usual in all moderate-sized colleges to cover some parts of the requirements of these students in association with the students of building proper. Thus

the wide range of options mentioned in (ii) above, which is offered in most advanced building courses, may *inter alia* meet some of the needs of students preparing for one or other of the groups mentioned in paragraph 5 above. Much can be done in this way, and a more general adoption of this plan is needed. Nevertheless, all these occupations have their special requirements in the field of technical and professional education. Every effort should therefore be made to cater, as fully as possible, for those subjects which are considered essential by the responsible professional bodies. Increased numbers of students, coupled particularly with better regional co-operation between the colleges, should enable more adequate facilities to be offered in the future. Local contacts between the colleges and the representatives of the various professional and technical bodies are essential to the success of these efforts. The recently established Higher National Certificate in Civil Engineering offers an opportunity for the study of construction over a wide and advanced field for those who have obtained their preparatory studies mainly in relation to building as commonly understood.

#### *Qualification and Certification*

8. Certificates are awarded in the earlier stages of craft courses by the technical colleges or by the Regional Unions. All these courses, however, aim ultimately to prepare for the craft examinations of the City and Guilds of London Institute. The Ministry of Education Art Diploma Examinations also include Plastering, Painting, Decorating, and Sign-writing.

In the technician group, the courses already indicated generally prepare for the award of National Certificates and National Diplomas in Building.

The professional and similar courses prepare for the membership qualifications in a long list of professional institutions covering the occupations listed above in paragraph 5. Degree courses are also available for some of these occupations. Study along these lines is not generally limited to those specifically aiming at entry into and employment in one or other of these professional occupations. In many cases, where membership of some related professional institution may be taken up, the accompanying course of study and the experience called for may add considerably to a man's ability and efficiency in the building field. Thus, for example, the number of graduates employed in building as well as of men otherwise professionally qualified, is steadily increasing. This is a tendency to be encouraged; and authorities and colleges may make a substantial contribution to it by the provision of suitable facilities for Further Education.

## 2. ARCHITECTURE

*Scope of the Profession*

1. The architectural profession is closely associated with the building industry, and both respond in like manner to the demand for their services. But whereas in the building industry much of the expansion in personnel now necessary is directly due to the decline during the war in architecture there was a substantial increase in strength before the war, due to the unification of various interests and the registration of architects following the Acts of 1931 and 1938.

Although the number of persons entering the profession annually is probably not greater than in pre-war years, the demand for admission to the "recognized" schools of architecture has increased considerably since the passing of the 1938 Act, when admission to the "Register of Architects" was restricted to persons qualified by examination recognized by the Architects' Registration Council. The implications of this have not yet been realized fully, and some adjustment of existing provision may be ultimately expected. Architecture is now, however, more favourably placed to deal with the immediate task of reconstruction and has less need for a stimulated campaign of recruitment.

2. The field of Architecture is wide enough to cover public and domestic, ecclesiastical and industrial, scholastic and commercial building ; and a place for the architect is found in all communities, whether he acts as a public official or as a private practitioner. For those who, for one reason or another, are unable to set up in practice on their own account, there are many openings for employment as architectural assistants in all types of offices, varying from the large city firm with elaborate organization to the small country practice ; or as specialists in the many modern forms of construction.

*Entry into the Profession*

3. The minimum educational standard of admission is the School Certificate. On entering his course of training the intending architect must have reached a standard of education at least equivalent to that of the School Certificate, while Matriculation is a pre-requisite for those who may desire to take a University Degree in architecture.

4. No one may practise as an architect in Great Britain unless registered under the Architects' Registration Act, 1938. No person will be eligible for admission to the Register of Architects without having passed one of the examinations recognized as a



qualification for Registration. These examinations presume a definite course of training.

5. There are 17 Qualifying Examinations recognized for purposes of admission to the register. One is the Final Examination of the Royal Institute of British Architects; the remainder are final examinations of the recognized schools of architecture. Qualification and admission to the register applies equally to the three categories within the profession—Licentiate, Associate, and Fellow of the Royal Institute.

### *Courses of Study and Qualification*

7. *Full-time Courses taken before Employment.*—These may be grouped as follows :—

(i) "Recognized" five-year courses at the Universities of Durham, Liverpool, London, Manchester and Sheffield for their degree or diploma.

(ii) "Recognized" five-year courses at the grant-aided technical or art colleges of Birmingham, Cardiff, Leeds, London (Regent Street Polytechnic and Northern Polytechnic) and Nottingham, and at the independent School of the Architectural Association.

(iii) Three-year courses at the grant-aided technical or art colleges and schools of Bristol, Cambridge, Hull, Leicester, Oxford, Portsmouth and Southend.

Courses (i) and (ii) lead directly to the qualification accepted for admission to the Register of Architects.

Courses (iii) lead to an intermediate qualification recognized by the Royal Institute of British Architects as exempting from the Intermediate Examination of that body.

(iv) Certain other institutes and schools offer full-time courses of varying duration which are not recognized for exemption purposes, but are (in certain cases) granted minor facilities by the R.I.B.A.

8. *Part-time courses concurrent with employment.*—These may be grouped as follows :—

(i) Part-time day courses, extending over four or five years and provided by certain "recognized" schools of architecture. These lead to an intermediate qualification accepted by the R.I.B.A.

(ii) Part-time day courses are also offered by grant-aided technical and art institutes and schools which carry no exemption privileges. In these schools students are prepared for the external examinations of the R.I.B.A.

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(iii) Part-time evening courses extending over five years are provided by certain "recognized" schools of architecture. These lead to an intermediate qualification accepted by the R.I.B.A. These schools also provide post-intermediate courses in preparation for the R.I.B.A. External Final Examination.

(iv) Part-time evening courses are also provided as at (ii) above, in which students are prepared for the R.I.B.A. external examinations.

9. Information on schools recognized by the R.I.B.A. for the purpose of these part-time courses, may be obtained on application to the Royal Institute. In addition, various scholarships and grants are available from the R.I.B.A., from the recognized schools of architecture, and from many local authorities for instruction and in some cases for maintenance.

## GROUP III

### CHEMICAL MANUFACTURE

AND

### CHEMICAL PROCESS INDUSTRIES

#### GENERAL SUMMARY

##### *Scope of Work*

1. Broadly speaking, the industries grouped under these headings involve mainly (A) the actual manufacture of chemical products, or (B) the chemical processing or transformation of the materials undergoing manufacture, e.g., gas manufacture, paper-making, plastics.

In both types the manufacturing processes require to be under the ultimate supervision and control of professionally qualified chemists; but may be operated by assistants and craftsmen possessing varying degrees of chemical knowledge and skill, according to the type of industry.

2. Thus a technician or a craftsman in some branch of the chemical industry may need to have a very considerable knowledge of this science; whilst at the other end of the scale, the knowledge of chemistry required by the actual workers in a plastics-moulding works, or in a paper-mill may be small.

3. It is convenient, therefore, in dealing with the training of personnel for these important industries to deal with them in two groups :—

#### A. CHEMICAL MANUFACTURE

This comprises four main sections :—

- (i) *Heavy Inorganic Chemicals*, e.g., mineral acids, alkalies, soda, ammonia, fertilizers.
- (ii) *Heavy Organic Chemicals*, e.g., dyestuffs, explosives, fats and oils, plastics, soap, solvents, synthetic rubber.
- (iii) *Fine Chemicals*, e.g., specialized products such as research chemicals, flavouring matters, perfumes, photographic materials, saccharin.
- (iv) *Pharmaceutical Manufacture*, e.g., natural and synthetic drugs, and related products.

There is, however, no rigid line of demarcation between these sections.

#### *Classification and grades of workers employed*

4. Workers in the chemical industry may be divided into the following main grades :—

- (i) Directors, managers, research chemists, assistant managers, all usually highly qualified.
- (ii) Assistant research, analytical, and works chemists, usually professionally qualified.
- (iii) (a) Chemical assistants of various grades with such qualifications as Inter. B.Sc., National Certificates in Chemistry, City and Guilds Certificates.
- (b) Process workers, charge hands, foremen.
- (c) Chemical labourers.

#### *Educational facilities*

##### *(a) Higher Staff*

5. In the classes comprised in 4 (i) and (ii) the majority of chemists will have received full-time or part-time training to honours degree standard or beyond. Younger employees in the other groups who aspire to full professional status, may obtain their training by attendance at part-time classes at a technical school or college.

6. Schemes for part-time day release are not common ; but there are some exceptions where younger employees of good general education attend one, two, or three days a week at a local technical college to study for a degree in chemistry. There are a few works

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schools ; occasionally such schemes are developed in association with a technical college. *Sandwich* courses are not generally available nor, except in Manchester, are any courses available for training the commercial staff of chemical works.

7. For the higher grades there are a number of evening post-graduate refresher courses at suitable centres ; further courses of this type are desirable, particularly those dealing with new techniques, instruments, and specialized apparatus.

8. Training in research is essential for the higher grades of staff ; this is usually obtained at the universities and at a few major technical colleges. Greater encouragement of research work at technical colleges generally is desirable. Some major institutions should include special departments for study, research, and advice in connection with such subjects as brewing, rubber technology, plastics, ceramics, and paint technology.

### *(b) Technicians and Craftsmen*

9. The lower grades in the chemical industry require a knowledge of chemistry and of chemical facts as affecting matters such as laboratory technique, transport, simple engineering, labour, range and supply of materials, and disposal of finished products, so that their work may have a proper scientific background.

10. Schemes for part-time day release are not common. The main opportunities for further education offered to these workers are in evening classes which frequently form part of a university degree course, or of a course for a National Certificate in Chemistry. Such courses assume the ability of students to continue part-time study over three or five years.

11. Technical colleges should be prepared to arrange part-time day courses of limited duration in elementary chemical technology suitable for such students, in addition to the normal degree or other courses for the more academic type of student.

### *Qualification and Certification*

12. (a) For the professional grades the qualification is the Associateship or the Fellowship of the Royal Institute of Chemistry, usually associated with an Honours degree in Chemistry of a university, or with the Associateship of the Imperial College of Science and Technology, or of the Manchester College of Technology or some equivalent.

(b) For the lower grades there are the Ordinary and Higher National Certificates in Chemistry, the Intermediate B.Sc. of a university, Higher School Certificate, and the various specialized certificates of the City and Guilds of London Institute.



*References :* Useful information may be obtained from "The Teaching of Applied Chemistry," Board of Education Pamphlet No. 85, 1931 ; Report of the Chemical Education Advisory Board, Royal Institute of Chemistry, 1944. Advice and information may be obtained from the Registrar, Royal Institute of Chemistry, 30, Russell Square, London, W.C.1 ; the Secretary, British Association of Chemists, 175, Piccadilly, London, W.1 ; and from the City and Guilds Department of Technology, 31, Brechin Place, S.W.7.

## B. CHEMICAL PROCESS INDUSTRIES

This group includes a number of important industries which, though not commonly regarded as branches of the manufacturing chemical industry, do, in fact, rest on a chemical basis ; and employ large numbers of chemists and technicians of all grades.

It includes the following more important branches :—

- (1) Brewing and Fermentation.
- (2) Coal Processing.
- (3) Fuel Technology.
- (4) Gas Industry.
- (5) Leather Manufacture.
- (6) Paint and Varnish Manufacture.
- (7) Petroleum Technology.
- (8) Pharmaceutical Manufacture and Pharmacy (included for convenience in this group).
- (9) Plastics Technology.
- (10) Rayon Manufacture.
- (11) Textiles (Dyeing, Bleaching, and Printing).

### 1. BREWING AND THE FERMENTATION INDUSTRIES

1. This industry is concerned mainly with the production of beer, wines, and spirits ; but other aspects of fermentation, such as the production of yeast, alcohol, citric acid, penicillin are also important.

#### *Qualification and Certification*

2. (i) For the higher technical grades, an honours degree in Chemistry, preferably with some post-graduate research experience, is usually desirable.

(ii) Special courses dealing with brewing and the fermentation industries are held at Birmingham University ; Heriot-Watt College, Edinburgh ; Manchester College of Technology ; and at the Sir John Cass Technical Institute, London. The training given leads in due course to the Associate Membership of the Institute of Brewing, the professional body connected with the industry.

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(iii) In the lower grades a good knowledge of chemistry, particularly of biochemistry, is desirable ; and the Technological Certificate in Brewing of the City and Guilds of London Institute is a well-recognized qualification.

*References :* Information as to training and prospects may be obtained from the Secretary, The Institute of Brewing, Goring Hotel, Grosvenor Gardens, London, S.W.1.

## 2. COAL PROCESSING

### *Scope of Work*

1. The main sub-divisions of this industry are :—

(i) High Temperature Carbonization.

(a) In gas works.

(b) In coke ovens.

(ii) Low Temperature Carbonization.

(iii) Hydrogenation of coal and coal products.

2. The prosperity of High Temperature Carbonization depends on markets for gas, coke, and by-products ; and these were expanding before the war. Low Temperature Carbonization gives different by-products ; and Hydrogenation produces liquid fuels of various kinds.

### *Personnel Employed*

3. Apart from qualified engineers and chemists—whose training is dealt with elsewhere—in a few supervisory posts, the majority are technicians, laboratory assistants, and craftsmen of the non-professional grades ; and their general conditions of employment are noted in another Section. There are posts for the research worker, e.g., at the Fuel Research Station and under the Gas Research Council.

### *Educational Facilities*

4. In the districts of these industries evening classes in technical colleges are available, but shift work upsets regular attendance. Day attendance is not common. Chemical assistants and laboratory technicians form the majority of these classes, which are little used by the men on the works. Better co-operation with industry would mean greater help with equipment and apparatus, and possibly a better attitude towards day attendance. Higher technical work is at present carried on in Leeds University, and at the Imperial College of Science.

*Qualification and Certification*

5. The qualifications available are :—

(i) The full Technological Certificate of the City and Guilds of London Institute, the syllabus for which includes (a) coke and by-products manufacture, (b) coal tar distillation and crude intermediate products manufacture, (c) low temperature carbonization, (d) hydrogenation of coal and oils. So far no examinations have been held for subjects (c) and (d) which are mainly of local interest.

(ii) The Certificates and Diplomas of the Institution of Gas Engineers (*see* Group V).

(iii) The qualifications of the Institute of Fuel. (*See* following Section.)

### 3. FUEL TECHNOLOGY

*Scope.*—This branch of technology deals with the scientific treatment and utilization of fuel for domestic and industrial use. It is thus closely related to other branches of technology such as coal-processing, gas manufacture, and petroleum technology.

At present one of its chief objectives is to ensure the efficient and economical utilization of fuel, and the prevention of waste and atmospheric pollution, particularly in relation to coal and coke and the generation of power.

*Grades of Personnel.*—For the most important posts engineers and chemists with special training are needed and for the lower grades, engineering technicians and craftsmen, chemical assistants and stokers, with special training in the subject.

*Facilities for Training and Certification.*—As Fuel Technology is connected equally with chemistry, engineering, and chemical engineering, the higher-ranking personnel generally receive training to degree standard, or its equivalent in one of these three branches ; followed by post-graduate training in a Fuel Department, such as that of Leeds University, of the Manchester College of Technology, or of the Imperial College of Science and Technology. Alternatively, specific training in Fuel Technology leading to a degree or a diploma is obtainable at these three Institutions. Such training is fostered in particular by the Institute of Fuel (30, Bramham Gardens, London, S.W.5) and by the specialized institutions dealing with various fuels, such as gas and petroleum.

For the lower non-professional grades, courses in Fuel Technology are also arranged at various Technical Colleges according to the demand.

*References :* General information may be obtained on application to the Secretary, Institute of Fuel. *See* also in this Group "Coal Processing" (No. 2), "Gas Engineering" (No. 4), "Petroleum Technology" (No. 7).

## 4. GAS INDUSTRY

*Scope.*—The gas industry consists of a large number of statutory undertakings which supply gas to public consumers, producing also coke and other valuable by-products by the carbonization of coal. Each undertaking has normally two sections—manufacture and supply, the latter dealing with the distribution and utilization of the gas.

*Personnel.*—The control of manufacture is in the hands of gas engineers, chemists, and, on the various plants, foremen and charge hands with fitters mechanics and labourers for maintenance and heavier work. On the supply side, the work is carried on by engineers and other specialized staff, under whom work the foremen and fitters, with sales staff and inspectors.

*Educational facilities.*—The highest grades, such as gas engineers and chemists, are only occasionally qualified professionally before entering the industry. Higher technical and post-graduate work is done in the Fuel Department of Leeds University, and Scholarships are available. Normally, qualifications are completed by part-time study. Many undertakings pay the fees of their students.

For other grades, further education is carried on almost entirely in evening classes. Only a few undertakings arrange for part-time day attendance by students. This is partly due to the difficulties caused by shift work, but authorities should not find these difficulties insurmountable. More has been done so far on the technical than on the commercial side. Teachers of gas engineering are all part-time; and so far, except in a few large towns, the small number of students has made it difficult to run classes continuously. Accommodation for the study of gas supply (laboratory work) and for practical gas fitting, needs improvement. Technical institutes should approach the industry for the supply of suitable expert teachers, and for the loan of appliances and materials. Technical colleges should also consider undertaking more research or development work for the industry.

*Qualification and Certification.*—At the highest levels the qualifications are the Diplomas and Certificates of the Institution of Gas Engineers. The courses for the Certificates are organized on similar lines to National Certificates, and the Higher Grade Certificate qualifies for Associate Membership of the Institution. Many of the technical staff also hold university degrees (B.Sc.) or Associate Membership of the Institutions of Civil or Mechanical Engineers, Associateship of the Royal Institute of Chemistry, or



of the Institute of Physics. At intermediate, craft, and lower levels the Institution of Gas Engineers works in co-operation with the City and Guilds of London Institute in providing suitable examinations in the branches of manufacture and supply. The City and Guilds of London Institute grants Certificates for Gas Technology ; and in Gas-Fitting the five-year course runs concurrently with apprenticeship.

The arrangements for technical qualification are contained in the Education Regulations of the Institution of Gas Engineers, to be obtained from the Secretary, 1, Grosvenor Place, London, S.W.1. There are also courses for salesmen and demonstrators on the consumer side, organized by the British Commerical Gas Association.

## 5. LEATHER MANUFACTURE

1. The Leather Industry is extremely important, although not employing large numbers. English sole leather has for long been a noted export, and light leathers made in this country find many markets. Rough tanned leather, particularly kips and skins from India, is an important feature of the home trade ; while many of these are dressed for home consumption, large quantities are re-exported either in the rough, or after dressing.

These three types of leather indicate the main divisions of the industry on the basis of output.

2. The *Heavy Leather Trade* produces principally sole leather, belting leather, and dressing hides. There is a marked concentration of this kind of production in the area between Manchester and Liverpool, with other concentrations near the Humber, the Severn, and the Thames.

3. The tanning and finishing processes in this section of the trade call, in general, for small numbers of persons with a training in chemistry and a large number of labourers. For the former there are regular courses available at Leeds, London, and Northampton. For the latter, the same centres cater for elementary instruction in scientific principles ; but there is no craft instruction of importance, partly because of the difficulty in providing practical training in any of the existing Institutions.

4. The *Light Leather Industry* is scattered over the country. The Light Leather producer may tan calf-skins or sheep-skins of native origin, along with some which are imported ; goat-skins are all imported, and represent the raw material for such important leathers as glazed kid and book-binding leather. Some of the establishments which tan skins also buy undressed tanned skins and kips

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to be dressed into finished leather ; although this kind of production is most frequently found in establishments which do no tanning.

5. For the section of the Light Leather industry devoted to tanning, the same occupational requirements obtain as for heavy leather manufacture ; but the subsequent dyeing and finishing call for a number of technical experts in addition ; similar technicians are required in the dressing establishments. In addition there is a greater demand for craftsmen, especially as even in the machine finishing operations a good deal of skill and knowledge may be called for. At the centres mentioned above, there are courses suitable for Light Leather producers and there is some provision of craft instruction, although this tends to be mainly in the use of machinery.

### *Qualification and Certification*

6. The City and Guilds of London Institute award a full Technological Certificate in Leather Manufacture ; also in Leather Dyeing and Finishing.

## 6. PAINT AND VARNISH MANUFACTURE

### *Scope*

Paint and Varnish Manufacture forms an extensive and important branch of industry, centred mainly in London, Hull, and Lancashire. It deals with the uses of pigments, resins, lakes, oils, and solvents used in the manufacture of paints, varnishes, enamels, lacquers, and printing inks. The production is controlled ultimately by the trained chemists and physicists in the laboratories, whilst the actual manufacture is in the hands of foremen, chargehands and labourers with diminishing demand for precise scientific knowledge. The industry now depends on the plastics industry for some of its raw materials ; and synthetic solvents are also largely used.

### *Training and Certification*

For the higher technical and research posts an honours degree in Chemistry or in Physics is desirable ; in a few larger technical colleges, notably the Borough Polytechnic and the Manchester College of Technology, special courses in the technology of pigments, paints, and varnishes are held. These lead to the widely-recognized Full Technological Certificate of the City and Guilds of London Institute in the Manufacture and Technology of Pigments, Paints, and Varnishes after a four years' course. For more

advanced workers the City and Guilds award a special certificate in Methods of Investigation in Paint Technology, which includes a special study of Colloid Chemistry.

For the non-professional entrants an apprenticeship scheme has been approved for those between 14 and 21 as (a) works apprentices ; (b) laboratory apprentices.

### *Reference*

Information and advice is available from the Secretary, Oil and Colour Chemists' Association, 8, Ludgate Broadway, London, E.C.4.

## 7. PETROLEUM TECHNOLOGY

### *Scope*

As a branch of chemical engineering, this industry calls for expert and specialised knowledge of chemistry, physics, geology, and engineering in the higher professional ranks of the controlling and supervisory grades ; and a general knowledge of chemistry and engineering is desirable in all grades.

### *Training and Certification*

For the professional grades an honours degree in chemistry or in engineering, or an equivalent qualification is the most usual basis from which to start specialized training in the various branches of petroleum technology. Chemists supervise the purification of the crude oil, cracking, separation, and blending ; and check the composition and properties of the finished product. The design, erection, and control of the plant is a matter for trained chemical engineers with special knowledge of handling liquids and vapours ; and engineers design, erect, and maintain power units, transport, and related machinery.

The particular education which may be needed will therefore be determined by the special interests and aptitude of the student concerned. There are courses in Petroleum Technology at Birmingham University, leading to Associate Membership of the Institution of Petroleum Technologists.

For the supervisory and process grades certain technical colleges have conducted courses in the technology of petroleum leading to the Technological Certificate of the City and Guilds of London Institute in Petroleum and Petroleum Products.

### *Reference*

Information as to professional qualifications may be obtained from the Secretary, The Institution of Petroleum Technologists, Aldine House, Bedford Street, London, W.C.2.

## 8. PHARMACEUTICAL MANUFACTURE AND PHARMACY

### *Scope*

The pharmacist is responsible for handling and dealing in medicaments of all kinds, natural and synthetic, together with such medical ancillaries as ointments, plasters, bandages, surgical aids. He must be on the register of the Pharmaceutical Society as a statutory requirement. Unless he is so registered he is not entitled to describe himself as a pharmacist or to use the words "chemist and druggist" in connection with the retail sale of goods, or to deal with certain classes of poisonous substances.

### *Personnel*

A large proportion of qualified pharmacists work in retail businesses as owners, partners, or assistants. Others work in the pharmaceutical departments of hospitals; or are engaged in some branch of the pharmaceutical manufacturing industry.

### *Training and Certification*

Three alternative methods of training as a pharmacist are available: (a) to follow a three-year full-time course at a recognized university leading to the degree of Bachelor of Pharmacy; (b) to study for and pass the Intermediate Examination of the Pharmaceutical Society or an exempting examination such as the Higher School Certificate, followed by a one-year full-time course of study at an approved institution leading to the qualification of "Chemist and Druggist" or (c) by a two-years' full-time course at an approved institution, for the Pharmaceutical Chemist qualification. Full courses are available at a number of centres, including London (Chelsea Polytechnic), Leicester College of Technology, Birmingham Central Technical College, Manchester (College of Technology), and the technical colleges at Bradford, Brighton, and Liverpool. Intermediate or exempting qualifications involve chemistry, physics, and biology only.

Apprenticeship and practical experience are also required before a student—aged not less than 21—can apply for registration with the Pharmaceutical Society. Part-time courses of study are not accepted by the Society in fulfilment of their requirements.

### *Reference*

Advice generally for intending students may be obtained from the Secretary, Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, London, W.C.1.



## 9. PLASTICS

*Scope*

1. The Plastics Industry covers a wide field from rubber and rubber-like substances, to hard transparent glass-like resins ; from flexible extruded tubes and mouldings, to electric instrument panels and everyday domestic appliances. From the educational point of view one must distinguish between (a) the development and manufacture of the plastic raw materials and (b) their utilization in the manufacture of finished articles by extrusion or pressure moulding.

2. In the manufacture of plastic raw materials the main factor involved is advanced physical and organic chemistry, with the necessary applications of chemical engineering in the design and erection of the requisite chemical plant. The whole process is essentially that of industrial organic chemistry, for which the necessary education and training has already been discussed. (See Section A of Introduction to this Group.)

In the manufacture of finished articles in plastics, or containing plastic materials, engineering qualifications are the most important—mould and tool design and control of pressures and temperatures. Artistic design is highly important in the finished product ; and chemical knowledge for testing raw materials and products.

*Training and Certification*

3. In (b) as above, the higher posts are at present occupied mainly by graduates in chemistry, in physics, or in engineering who have supplemented their academic training by experience in the works. In due course they may apply for admission as Associates of the Institute of the Plastics Industry.

For operatives and apprentices there is a two-years' part-time course at certain technical colleges—including typically in London the Borough Polytechnic and the Northern Polytechnic ; and the technical colleges at Birmingham and S.W. Essex—with certification by the City and Guilds of London Institute. The Diploma of the Institute of the Plastics Industry is awarded to those who pass both years successfully.

4. The Associateship and Fellowship of the Institute involve more advanced courses and are intended for those aiming at research and executive posts in the industry.

The number of designers needed for the industry is likely to be limited and aspirants would be well advised to follow in the first place a normal art course, and then consider the special requirements of the plastics industry.

*References*

Attention may be called particularly to the pamphlet "Educational Facilities," issued by the Institute of the Plastics Industry,

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Windsor House, Victoria Street, London, S.W.1. This gives details of the courses of training and also gives a list of Technical Colleges where suitable courses are, or will be, provided, leading to the qualifications noted above.

## 10. RAYON MANUFACTURE

### *Scope*

1. This industry is related on the one hand to the chemical industry, and on the other to the textile industry. Thus, the actual manufacture of the raw material, e.g., cellulose acetate, nylon, viscose, is a branch of the heavy organic chemical industry and is closely connected with the plastics industry since the products may, with suitable modifications, be used either for plastics moulding materials, for sheet, or for textile fibres ; while the subsequent spinning and weaving of the rayon fibre and any finishing process such as dyeing or bleaching is a branch of textile technology.

### *Personnel and Training*

2. The control of the manufacture of the raw material is in the hands of skilled chemists and their assistants ; and conditions of entry, and training, are therefore much the same as for the chemical industry generally. (See Section A of Introduction to this Group.)

There are special courses of instruction available at Manchester (College of Technology) and the technical colleges at Bolton and Blackburn.

3. At the spinning and finishing end, the qualifications are broadly similar to those in other branches of the textile industries (See Section 24 of Group VI).

### *Certification*

4. On the chemical side the training and certification are identical with that required in other branches of the chemical industry. On the textile side, qualifications in textile technology are required.

The technological certificates of the City and Guilds of London Institute in Silk and Rayon Manufacture are widely accepted.

## 11. DYEING AND BLEACHING OF TEXTILES AND TEXTILE PRINTING

### *Grades of Personnel Concerned*

Broadly the main groups are :—

- (1) Chemists.
- (2) Foremen and Charge hands.
- (3) Operatives.

1. Chemists are frequently university graduates. Foremen, in some cases—e.g., dyeing—have been apprentices to other foremen and have in any event worked their way up through the works.

### *Educational Facilities*

2. Full-time courses in chemistry are available at universities and at many technical colleges (see introduction to this Group). For workers in the second grade, part-time provision is made in local technical colleges situated in areas of concentration of the industry; hitherto, largely by evening work.

Various specialist courses of instruction are available at the technical colleges of Bradford, Leeds, Huddersfield, Manchester, Salford, Burnley, and Bolton.

The main deficiency so far as groups (1) and (2) are concerned is that opportunities for really practical studies are very limited indeed. Much closer co-operation with industry should be sought, both in further day attendance of selected personnel for further education at local technical colleges and, in general, greater facilities for university students and craft workers to do practical work under expert guidance as part of their studies.

### *Qualification*

3. At the higher levels, qualification is normally by means of full-time university study for the B.Sc. degree. For grade (2) workers there are also City and Guilds of London Institute Technological Certificates available; and these are used to a less extent by grade 3 personnel also. (See also Section 24 of Group VI.)

## GROUP IV—COMMERCE

### *Scope of Work and Grades of Personnel*

1. A survey of commercial occupations brings out a number of features which have influenced schemes of education considerably, e.g. :—

(i) There are certain specialised groups which are organized into separate and exclusive professions, frequently with a student membership and with prescribed examination syllabuses. The general education of those who seek to enter these professions is the subject of regulations which vary in rigidity as between one professional body and another.

(ii) There is a large variety of occupations of a quasi-professional nature whose members require education similar in many respects to that of those in (i) (above) but which have no professional organization and no recognized schemes of professional certification.

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(iii) There are large numbers of non-professional routine workers whose duties are mainly clerical.

(iv) Those engaged in wholesale and retail trade have distinct educational needs.

### *Existing Educational Facilities*

2. These vary considerably from place to place, and very largely according to local requirements. There is, however, a recognized framework around which Authorities construct their schemes in whole or in part, and the classification (1) *Professional*; (2) *General Commercial*; (3) *Modern Languages* and (4) *Clerical* has wide acceptance.

3. Special branches of trade have their needs met by (5) *Courses which do not fall readily into the above-mentioned groups*: probably the courses for persons engaged in retail trade are the commonest.

### *1. Professional Courses*

(i) *Accountancy*. Among the professional bodies with the strongest influence are the Institute of Chartered Accountants, the Institute of Municipal Treasurers and Accountants, the Institute of Cost and Works Accountants, the Association of Certified and Corporate Accountants and the Society of Incorporated Accountants and Auditors. The larger commercial institutions may have separate groups of students representative of all these bodies; but, as a general rule, the students are taken collectively and a workable compromise is sought in order to arrive at a syllabus suited to all needs. Success in the intermediate and final examinations may require serious study for at least three years, and usually for a very much longer period.

(ii) *Banking*. The services rendered to the community by the banks are widespread; and as a result, the recruitment to the profession is constant and the educational qualifications laid down by the Institute of Bankers are eagerly sought after. Most of the larger commercial schools and colleges have established strong links with the profession; and courses for Parts I and II of the Associateship Examination and for the more specialized studies in Executorship and Trustee work for the Diploma are found in most of the colleges of any magnitude. The Institute of Bankers has recently published revised examination requirements which will affect the courses which have been followed for many years. The recognition of examinations conducted at certain approved commercial institutions as a contribution towards the Associateship requirements is to be maintained.



(iii) *Insurance.* A little work is done in the training of actuaries ; but the number of entrants to that branch of insurance being comparatively small, the emphasis is laid upon the requirements of students seeking preparation for the examinations of the Chartered Insurance Institute.

(iv) *Law.* The two recognized branches of the Legal Profession have their own arrangements to meet the examination requirements of the student members of the Law Society and clerks and student members of the Inns of Court, but it is not uncommon for such students to join law classes at the commercial institutions many of which have courses, which, though designed to meet other needs, provide suitable tuition. The bulk of the work, however, is connected with the needs of students preparing for other professional examinations requiring a knowledge of Company Law and Mercantile Law ; for National Certificate examinations ; and, to some extent, for the intermediate examination for the degree of LL.B. of London University. Recent years have seen the development of successful courses in General Law designed to provide a background of knowledge for the benefit of students whose particular requirements might otherwise be too narrowly circumscribed.

(v) *Education for Management.* The successful launching of the business training scheme sponsored by the Ministry of Labour and National Service and the Education Departments has given considerable impetus to a form of training which has not hitherto received full attention in this country. Many hundreds of students are already attending the short full-time courses which are designed to lead to more specialized training in businesses, and it may well be that these will become a permanent feature in commercial education. The recent recommendations of the Board of Trade Committee that a British Institute of Administration be formed are further evidence of the importance of this subject and will no doubt have repercussions which may make themselves felt in the technical colleges.

The work in the past has been of a part-time nature. Some of the courses have come under the Institute of Personnel Management ; others have been run in association with the Institute of Industrial Administration ; and some again have come within the scheme of the Incorporated Sales Managers' Association classes in salesmanship, variously conceived.

(vi) *Secretarial Work (Company).* This subject has received full consideration in the past from those responsible for the preparation of schemes of commercial education for the larger institutions. The reasons have been, generally speaking, sound ; for, apart from the fact that numbers of individuals are required for appoint-

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ments as company secretaries, the course of training is a liberal one from which many who did not aspire to responsible secretarial appointments might nevertheless profit. It is probable that the development of Higher National Certificate schemes for Commerce will provide more adequately for the latter group of students ; and the Secretarial courses will be followed by those who are the direct concern of the Chartered body.

(vii) *Transport*. Courses designed to prepare students for the examinations of the Institute of Chartered Shipbrokers, the Institute of Transport and the Royal Society of Arts have figured in the schemes of most of the larger institutions ; and will, no doubt, continue to cater for the needs of the shore staffs of shipping firms and the administration and clerical staffs of land transport organizations. The interesting developments for which the National Standing Joint Committee on Road Transport Education has been responsible in association with the Royal Society of Arts during the last two years are designed to effect a change in the scheme of education for young entrants to road transport organizations, as laid down in the existing syllabuses of that Society. The influential associations which have sponsored the new scheme encourage the belief that the reorganization will be all to the good.

(viii) *Statistics*. Recent years have seen an increase in the need for trained statisticians in both industry and commerce, and it has been predicted that the requirements may result in the formation of a new profession. (Hankey Report.) The Royal Statistical Society is proposing to set up an examination scheme which will provide a professional qualification ; and the Treasury, envisaging greatly extended statistical work in all government departments, propose to recruit specially trained staff. It is clear from the evidence that statistics as a subject of study is likely to assume greater importance in the Commercial Colleges. It is already a compulsory subject in most of the approved schemes for National Certificates. But, if the developments which have been foreshadowed take shape, it will become necessary to organize special courses of study wholly concerned with Statistics and spread over a period of years.

(ix) *Other Types of Professional Courses*. It would be impossible to give a complete list of all such courses, and futile to attempt to describe their nature within the compass of this appendix ; hence, only some of the subjects of study of a professional or semi-professional nature which have been organized in different parts of the country will be enumerated : Advertising, Building Society Law and Practice, Civil Service examination requirements, Export

Practice, Librarianship, Local Government, Office Management and Organization, Stock Exchange Law and Practice. If the list does nothing else it will indicate the wide scope of the interests concerned and the need for vigilance in seeking to meet new requirements.

2. *General Commercial Courses.* These courses, as a rule, cover the major portion of the work of commercial institutions. They were, formerly at any rate, characterized by their single-subject nature, the students themselves being disinclined to undertake any study which did not appear to them to meet their direct requirements. Examinations were taken with commendable success ; but in the absence of strong backing from professional bodies or from some association representing the world of Commerce there was much mis-applied or unco-ordinated effort. The scheme for National Certificates in Commerce, formulated shortly before the war, should go far towards meeting the difficulties by placing a clear objective before the student. Co-ordinated courses in English, Business Economics, Accounts, Mathematics, Statistics, General Law and other basic studies can be mapped out to meet local and individual needs, and the transition to more advanced studies in Economics, special branches of Law, Accounting, Costing, Administration and the like becomes a natural sequence with the Higher National Certificate as the mark of academic success. This scheme, jointly administered by the Association of British Chambers of Commerce and the Ministry of Education, should receive close attention when development plans are in hand.

3. *Modern Language Courses.* The commercial institutions are the principal centres for the part-time study of modern languages, although the purpose of the study is not by any means always associated with Commerce. There are one or two autonomous schools of languages in the country, coming within the recognized purview of further education, and there are literary institutes and centres of adult education where modern languages are taught ; but expediency usually dictates that such studies shall be carried on where commerce is the main feature, and that courses for students whose motives for study may be non-vocational shall be held alongside those which have a fundamentally utilitarian purpose. The languages which attract the greatest number of students are French, German, and Spanish ; although Italian, Portuguese, Russian, Dutch, Danish, Norwegian, and Swedish have a following. The introduction of modern languages into the National Certificate scheme is provided for.

4. *Clerical Courses.* These are usually formulated with Short-hand and Typewriting as the central subjects, and their main



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purpose is to inculcate skill in Correspondence. The tendency here, though it is weakening, is for instruction in Shorthand and Typewriting to be the sole motive for attendance at classes ; but other subjects, such as English, Calculations, and Accounts have claims which are gaining increasing recognition. It is probable that the clerical courses are those which give rise to the greatest anxiety in the minds of heads of commercial institutions ; since there can be no courses more superficially attractive, yet, withal, so disappointing in persistence of attendance and ultimate attainment. Those who are responsible for organizing commercial institutions should exercise the closest vigilance when they are advising students who elect to take clerical courses. Facility in the use of English is an obvious requirement, and ability to make calculations with some degree of readiness is not an unreasonable pre-requisite. Hence it might well be that a young student should defer his lessons on the office arts of Shorthand and Typewriting until his basic knowledge is more firmly laid, and he should then make Typewriting his first care, since it may well be his first requirement. The certificates of the national and local examining bodies have a wide currency ; but the grouped course of studies is usually disregarded at the examination stage, the emphasis being upon detailed subjects.

5. *Trade Courses.* Statistics relating to juvenile employment in 1939 show that 23 per cent. of the male and 24 per cent. of the female population, insured for the first time, were engaged in the distributive trades ; and that these percentages were the highest recorded of any industrial groups. (The next in order was engineering for males, with 9 per cent. ; and the clothing industry for girls, with 12 per cent.) Even if allowance is made for wastage and for the fact that the distributive trades have more than their due proportion of *blind alley* occupations, it cannot be said that the vocational needs of the employees have been catered for to the extent they have in other branches of commerce. The explanation lies partly in the fact that the shop hours have made evening attendance at classes difficult and sometimes impossible in the past, but it must be admitted that there are other explanations such as inadequate equipment and accommodation suited to the special requirements of the teaching ; and, with certain notable exceptions, no strong backing from within the distributive trades themselves. Courses for grocers, meat traders, drapers, co-operative society employees, ironmongers have all figured in the prospectuses of one commercial institution or another, but success has not been achieved in every case. There are, however, pleasing evidences of strong efforts to establish improved schemes through day instruction or by better facilities for evening study. Certification takes place through



the technological examinations of the City and Guilds of London Institute or through those of the trading associations themselves.

4. The picture, incomplete as it must be, cannot be left without reference to the classes in special aspects of commerce which are a regular feature of the work of the larger institutions. The timber trade lectures organized by the Timber Development Association, and the special lectures on new legislative enactments affecting commerce, changes in income tax procedure, and the like, are examples of short-term arrangements to meet immediate needs. Refresher courses of an intensive nature for persons returning to their former occupations after periods spent in the services are becoming a common feature.

5. Most of the courses have tended somewhat to rigidity in the past, mainly because of the absence of sufficiently strong links with the world of commerce and industry. For this reason, and also because of the traditional association of commerce with the more populous areas, rural requirements have been largely overlooked. Schemes conceived in the spirit of the Education Act of 1944 should, however, be free from these avoidable defects.

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Young Workers and their Education.

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II—*National Association for the Advancement of Education for Commerce :*

Report on Policy in Commercial Education.

III—*Association of Principals in Technical Institutions and Association of Teachers in Technical Institutions :*

Policy in Technical Education.

IV—*Association of Technical Institutions :*

Policy in Commercial Education, and Higher National Certificates in Commerce.

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### V—*Yorkshire Council for Further Education* :

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### VI—*Ministry of Education* :

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Notes for the Guidance of Colleges and Schools on the  
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Commerce.

### VII—*War Office* :

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Curriculum Handbooks : Men and Society. Commerce.  
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### VIII—*H.M.S.O.* :

Report of Committee on *Salesmanship* (Goodenough).  
Report on *Higher Legal Education*.  
Report on *Training for Business Administration*.  
Report on the formation of a *British Institute of Admini-  
tration*.

### IX—*Institute of Bankers* :

Future Examination Policy.  
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### X—Examination Syllabuses and Reports issued by Professional Bodies and by Examining Bodies including :

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*Association of Certified and Corporate Accountants*.  
*Building Societies' Institute*.  
*Chartered Institute of Secretaries*.  
*Corporation of Certified Secretaries*.  
*Incorporated Sales Managers' Association*.  
*Institute of Certificated Grocers*.  
*Institute of Chartered Accountants*.  
*Institute of Cost and Works Accountants*.  
*Institute of Export*.  
*Institute of Municipal Treasurers and Accountants*.  
*Society of Incorporated Accountants and Auditors*.

GROUP V.—ENGINEERING AND CLOSELY RELATED  
OCCUPATIONS

## I. ENGINEERING

*General*

1. The Engineering group of industries covers so great a variety of undertakings and occupations that a short statement can include no more than their main features. The importance of this group in our national economy needs little emphasis; not only does engineering enter into almost every phase of modern life but, because it is predominantly an exporting industry, it is one of those essential to our prosperity. The engineering products of this country have always enjoyed a high reputation for quality and design, and they have found ready markets overseas. If they are to continue to do so they must be among the best of their class, embodying all that research and technical skill can provide, and attractively produced at an acceptable price. The personnel in the industry must therefore all be qualified in the highest degrees in their respective spheres; and it follows that those concerned with their education, in technology, commerce and art, are charged with a heavy responsibility.

*Scope*

2. The industry has become sub-divided and highly specialized. The original divisions of military and civil engineering have long gone; and the main divisions now are civil, mechanical, electrical, and naval architecture—each with corresponding chartered institutions at the professional level. There is a large number of specialist engineering sub-divisions such as those for aeronautical, automobile, chemical, heating and ventilating, highways, illuminating, marine, mining, production, radio, refrigeration, structural, telecommunication and welding engineering. Many of these have professional institutions of standing, which advise on the technical training of potential engineers.

3. There is necessarily much overlapping between the educational requirements and the technical activities of the various bodies, and no clear-cut line can, or need, be drawn. There are associated industries in which engineering is an important element, e.g., in watch and clock making, and in plastics; and there are ancillary industries or trades which bulk largely in any engineering organization, e.g., foundry practice, and patternmaking.

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### *Classification of Personnel*

4. The structure of the industry is pyramidal : at the base, large numbers of craftsmen and semi-skilled workers ; above these technicians, minor executives, and supervisory staff ; and finally the professional grades concerned with research, design, production, management and administration.

5. Any attempt at a classification into definite types each requiring a specific grade of training, leads to difficulties, simply because many professional engineers come through the works and are *en route* at a particular stage. Moreover, in an industry which is still in its entirety partly an art and partly a science, there are sections where the emphasis is upon trade processes and in which those in control, competent enough in that section, would be inappropriately qualified for another.

### *Education and Certification*

6. There are three elements in the education of an engineer, using the term in its widest sense : general education ; technical education ; and a knowledge of and practice in the arts of the industry.

7. For the well-being of the industry it is just as essential for the craftsmen to be well trained and knowledgeable as it is for the executive to be qualified to design or to direct. And it is a highly important, although sometimes neglected part of the work of technical colleges to provide adequate facilities for instruction in crafts and techniques. In the past, this instruction tended to be limited to what was termed the science underlying practice. Important though this is, it is not now enough. Modern production methods often preclude a thorough all-round craft training for the young worker ; and he must be encouraged to look in increasing measure to the technical college for guidance in the acquisition of craft knowledge and skills. There is, of course, a limit to what can be done in a college environment. The syllabuses as worked out by the City and Guilds of London Institute and the colleges well illustrate the technological content of courses for the craftsmen. These courses should not be static ; and there is much scope for experimental work in association with industry.

8. For those already in industry who aspire to more advanced posts, the range of National Certificate courses in the various branches of engineering offers a satisfactory means of training and certification. These typically British schemes are well established, and form the backbone of the work of the colleges in applied



science and technology. With the possibility of more liberal day release of youths in industry for education, the further development of these courses holds great possibilities ; for it is evident that the value to industry of young men who have secured concurrently both practical training and technical education will be very great indeed. It seems likely that from this source will come an increasing supply of men achieving professional rank. There is in addition a London University Degree for part-time students.

9. For those who elect to secure their technical training before entry to the industry, there are full-time courses leading to the degree of B.Sc., to the National Diplomas, or in preparation for the entry examinations of the professional engineering institutions. The popularity of the degree is unquestioned ; besides giving a hall-mark, it secures exemption from the bulk of the examinations of the institutions. Nevertheless, against this has to be set the disadvantages, overcome with difficulty later, of a lack of contact with British industry and working men during impressionable and receptive years. The *sandwich* type of course, achieving both aims in large measure, clearly has everything to commend it educationally, if not industrially.

10. The development of post-graduate or post-Higher National Certificate work in technical colleges is of vital importance. Probably no better service could be given the industry than the extensive development of specialist courses in applied science, and in those subjects requiring both experience and a mature mind, viz., management and administration. Coupled with this should be a systematic encouragement of research, particularly applied to industrial problems with which the college would be naturally concerned.

#### References :

- |                                      |  |
|--------------------------------------|--|
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| Institution of Mechanical Engineers. | The White Paper on Educational Reconstruction and its impact on training for Mechanical Engineering. |
| Institution of Electrical Engineers. | Education and Training for Engineers.  |
| Royal Aeronautical Society           | Education and Training of Aeronautical Engineers.  |

## SUPPLEMENTARY NOTES ON ENGINEERING (TYPICAL BRANCHES)

The following notes relate to features which are of importance in various branches of Engineering. It is to be specially borne in mind that whilst notes on certain branches (e.g., civil engineering, heating and ventilating engineering) are included here, they might well have been included with the section on Building to which they are equally appropriate.

1. *Civil Engineering* (See also BUILDING).—Educational schemes in this branch have in the past usually been related to the Associate Membership Examination of the Institution of Civil Engineers. The inauguration of a scheme for Higher National Certificates in Civil Engineering, giving subject-for-subject exemption from the Institution's examinations, is likely to supplant the former; as indeed it should. It is to be expected that the National Certificate scheme should be operative in most colleges of the front rank.

2. *Mechanical Engineering*.—A feature of many schemes is the emphasis on Organization and Management at the Post-Certificate level, in order to qualify students for exemption from Section C of the examinations of the Institution of Mechanical Engineers. There is everything to be said in favour of this kind of continuative study.

The courses devised by the City and Guilds of London Institute in Machine Shop Practice admirably suit the requirements of the better type of craftsman, and a considerable development of these courses is to be expected.

3. *Electrical Engineering*.—The needs of students are well met either by the well-known groups of National Certificate courses; or by the range of courses in such special subjects as telecommunications, or installation work, arranged to meet the requirements of the City and Guilds of London Institute. As far as National Certificate work is concerned, it is necessary to guard against premature specialization, e.g., in radio engineering—to the detriment of fundamentals.

4. *Naval Architecture*.—The demand for National Certificate courses has been limited, naturally, to the shipbuilding areas; but it has never been as great as might be expected. It is probable that a greater emphasis on Practical Shipbuilding is required, particularly in the smaller centres. A great flexibility in these schemes combined with more originality, e.g., to cover shipyard appliances, is very necessary.

5. *Production Engineering*.—This branch has been given much attention of late, and a pamphlet giving guidance on schemes and laboratory work has been available for some years. The inauguration of a Higher National Certificate in Production Engineering has not yet evoked the response which was anticipated. There can be no doubt that with the establishment of good experimental machine tool and measurement shops—a very necessary and urgent preliminary—a demand could readily be stimulated.

6. *Aeronautical Engineering*.—The Minister has established a College of Aeronautics, with its own airfield, at Cranfield near Bedford, for advanced studies in the important subject of aeronautics. The College, which will serve the Empire, is now being brought into operation. Provincial Colleges catering for the aeronautics industry should keep in the closest contact with the College and its activities, not only in order to keep abreast of developments but to ensure the preparation of selected students for further education at the national centre.

7. *Marine Engineering*.—The requirements for the shore establishments are very similar to those for mechanical engineering. Regarding the Merchant Navy, however, consideration is being given to a scheme involving the special recruitment and training of men who would be qualified to serve as officers afloat. The recommendations of the Merchant Navy Training Board should be given close consideration.

8. *Automobile Engineering*.—At the professional level the requirements are similar to those for Mechanical Engineering.

For craftsmen a new scheme has been worked out with the Joint Industrial Council and the City and Guilds of London Institute, for courses with a mixed craft and technology content, on which a national craft certificate will be awarded. The scheme, the first of its kind, is worthy of close attention.

9. *Heating and Ventilating Engineering*.—Operative apprentices who aim to become craftsmen engaged in the erection of installations normally take a four-year course of study leading to the examinations of the City and Guilds of London Institute, in Heating and Ventilation Engineering practice.

Technical apprentices who aim to become designers of installations and engineers, may complete a course in preparation for the Ordinary National Certificate in Mechanical Engineering; following which the industry provides facilities for suitably qualified apprentices to attend a full-time short course of study in Heating and Ventilating.

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Owing to the small numbers, arrangements should be made to run courses in selected centres, in connection with which the Local Area Committees of the National Joint Industrial Council for the industry may be consulted.

10. *Structural Engineering.* (See also BUILDING).—The subjects of Theory of Structures and Strength of Materials are basic subjects in a number of mechanical and constructional courses of study of a professional character. The subject of Structural Engineering, which represents a further and practical development of these subjects on the constructional side, is offered in a number of Engineering and Building Departments throughout the country. These may generally be embodied in one or other of the National Certificate schemes mentioned elsewhere in these Appendices, but attention should be given, at least in the larger colleges, to the need for the development of courses catering for professional requirements at the highest level and in close touch with current practice.

11. *Refrigeration Engineering.*—Courses for this important branch are almost non-existent and require stimulus. The industry is concentrated in a few areas, and in these full educational provision should be available. The City and Guilds of London Institute have now devised appropriate examination syllabuses, and these should be referred to by colleges likely to be concerned.

12. *Fuel Technology.* (See also CHEMICAL PROCESS INDUSTRIES).—The conservation of fuel is now imperative, and all courses dealing with engineering should cover the subject of fuel technology to a greater or less degree. Special courses in Boiler House Practice and Fuel Efficiency have already been operative but on not nearly a sufficiently great scale. The entrance examination requirements of the Institute of Fuel are worthy of close study. *Fuel technology concerns every technical college.*

## 2. COAL MINING

*The scope of the occupations to be covered*

1. (a) Officials, agents, managers, under-managers, surveyors, overmen and deputies, colliery engineers, surface foremen.

(b) Craftsmen and tradesmen, e.g., mechanics, electricians, carpenters.

(c) Surface men : Screen hands, labourers, haulage hands, lamp room attendants, boiler firemen.

(d) Underground workers : Haulage hands, coal-face workers, machinery operators, and semi-skilled mechanics and electricians.

(e) Entrants. (Juvenile and Adult.)



*The grades of personnel needing Further Education*

2. (a) *Officials*.—All officials require further education over a period of years.

(b) *Craftsmen and Tradesmen*.—Tradesmen require further education in craft courses. A limited percentage should take up courses which will enable them to qualify as colliery engineers.

(c) *Surface Workers*.—Certain grades of surface workers, e.g., lamp room attendants may require specialized training ; but all would profit by attendance at a well-balanced course of instruction which should include workshop practice.

(d) *Underground Workers*.—There is a great necessity for the training of machinery operators and semi-skilled underground workers. As in the case of surface workers, all would profit by an extended course of further education which included workshop training.

*Present educational facilities and main deficiencies*

3. Except for a few of the coalfields, there is good provision for the training of officials ; but there is still scope for the development of courses in administration and management. The practical training of officials follows no definite scheme, and requires correlation with the work that is done in the technical colleges. Too many students are seeking qualifications by attendance at evening classes only. Facilities for part-time day and full-time day release should be considerably extended.

4. The training of craftsmen, tradesmen, semi-skilled workers, and of the general body of surface and underground workers, has not been seriously attempted. In some coalfields there is accommodation for a considerable extension of the work ; in others, new premises and equipment will be necessary. To secure and train specialist teachers is a matter of great urgency.

The training of entrants to the industry is now obligatory. The scope of the work will increase. It is expected that Local Education Authorities will undertake the general and technical education of entrants in most of the coalfields. New premises, including lecture rooms and workshops, will be required in many of them.

*Types of Qualification and Certification available and in practical development*

5. The Board for Mining examinations conducts examinations for the award of certificates of competency which qualify the holders as managers, under-managers and surveyors of mines. Before candidates are admitted to the examination for Managers' or Under-Managers' Certificates they must have a certificate of general education. For this purpose the School Certificate and

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certain certificates of the Regional Examining Bodies are acceptable.

The Institution of Mining Engineers have recently adopted proposals by which candidates for Associate Membership will be required to pass appropriate examinations of the Institution.

6. Examinations for the certification of deputies in gas testing, air measurement, and hearing are held by the Local Education Authorities and educational institutions.

7. Probably because of the existence of a statutory system of qualification of colliery officials, National Certificates in Mining have not yet been introduced. It is likely that an ordinary National Certificate course would be extremely helpful in the education of junior officials ; and that a Higher National Certificate course would assist in the training of candidates for the colliery manager's certificate examination. This matter is receiving attention.

8. The City and Guilds of London Institute, the Institute of Mine Surveyors, and the Royal Institution of Chartered Surveyors hold examinations in Mine Surveying ; but as yet no qualification from any one of these bodies is accepted as an alternative to the statutory examination for the Surveyor's Certificate.

### *References*

Details of the regulations governing the examinations held for Certificates of Competency under the Coal Mines Act, 1911, may be obtained from the following Statutory Rules and Orders :—

No. 650, 19th April, 1921 ; 816, 9th July, 1933 ; 1059, 7th November, 1933 ; 1166, 11th December, 1933 ; 1190, 30th December, 1933 ; 596, 31st June, 1935 ; 434, 25th March, 1941 ; 635, 4th May, 1941 ; 636, 5th May, 1941.

Regulations relating to the training of entrants and other workmen in the mining industry have been made recently (S.R. & O. No. 1217, 28th September, 1945).

Educational pamphlet No. 7, " Mining Entrants," has recently been published by H.M. Stationery Office.

## WATCH, CLOCK AND INSTRUMENT MAKING

### *Scope and Organization*

1. These allied industries have assumed a position of increasing importance, and their vitality and development require to be fostered in every way possible. The war has shown, once again, their great importance strategically.

2. The divisions in the industry, and their training requirements, are generally similar to those described for the engineering industry. Although the techniques of the horological group of industries are largely identical with those for scientific instrument-making generally, the industrial divisions are distinct.

### *Development Proposals*

#### *A. Watch and Clock Making*

3. The scattered distribution of the industry means that the density of technical personnel in any one area is insufficient for an adequate provision to be made for all its needs locally. Because of this limited but widespread demand at the higher technological levels, a strong case exists for the provision of one very high grade centre to serve the country as a whole. The Ministry have therefore made arrangements for the establishment of a National College of Horology within the premises of the Northampton Polytechnic, London.

4. The national work will be full-time ; and provide for sandwich courses for students over 16 years of age, vacation courses, and research work.

Hence the provision locally, outside the greater London area, for this industry, will generally lie in the establishment of full-time courses for juniors, and for part-time day and evening courses. Advanced full-time work will be centralized at the Northampton Polytechnic.

#### *B. Instrument Making*

5. The branches of this industry, both electrical and mechanical, are widespread ; their requirements are the same as for precision light engineering.

6. There is obviously a parallel as regards the training requirements at the higher level between the instrument-making and horological industries. A decision on the establishment of a National College for Instrument-making has not yet been made but is under consideration.

### *Qualification and Certification*

The National Certificate in Engineering covers Horological Studies.

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### GROUP VI.—OTHER INDUSTRIES AND OCCUPATIONS

#### 1. BAKING AND FLOUR CONFECTIONERY

##### *Scope of Work and personnel employed*

1. The Baking Trade tends to increase and to change in character from hand to machine technique. The main grades of bakery workers employed are foremen and supervisors ; for bread, dough-makers and tablehands ; for confectionery, confectioner's mixers, confectioners, cake decorators, packers and sorters. Other workers are roundsmen, shop assistants, office and catering staff ; but in general these are not dealt with in the following paragraphs.

##### *Educational Facilities*

2. At the craftsman level, part-time day and evening classes are available in about 50 centres in preparation for City and Guilds full Technological Certificates in Breadmaking and Flour Confectionery respectively. Seven Bakery Schools—departments of the technical colleges at Birmingham, Blackpool, Cardiff, Leeds, Manchester, Wrexham, and the Borough Polytechnic (London)—are available with full-time staff ; and there are fitted bakery rooms available for part-time courses in about 60 other technical colleges or schools, including Brighton, Liverpool, Bradford, Oxford, Plymouth, Huddersfield, Halifax, S.W. Essex and Nottingham. In certain cases trade bakeries are in use for practical work. This provision is not adequate. Some four or five additional Bakery schools in South, South-west, and East regions are needed : with a considerable number of other centres equipped for work at City and Guilds level.

3. Industry helps generously with equipment and material. Day attendance is only of recent growth, but is substantial ; although there are very few cases of attendance for those over 18. A number of scholarships are provided by the trade.

##### *Qualification and Certification*

4. A National Diploma awarded by the National Association of Master Bakers after two-year full-time courses from 16—18 is available ; also City and Guilds Technological Certificates in Breadmaking and Flour Confectionery.

More encouragement in research work is called for at the larger Bakery Schools.

##### *Reference*

Interim Report of the Education Committee of the National Association of Master Bakers, Confectioners and Caterers (from the Secretary of the Association, Wellington House, Strand, W.C.2—price 6d.).



## 2. BOOT AND SHOE INDUSTRY

*Scope*

1. The manufacture of footwear is highly localized, and each district concerned produces a limited number of types of boots and shoes. In general, the county of Northampton produces the better grades of men's footwear, while Leicestershire makes the middle grades of women's and children's. The production of the London area is somewhat similar, although there is a very important group of hand-sewn footwear producers. In Lancashire, slippers and the cheaper types of women's and children's shoes are the ordinary output. In Norwich, good grades of women's shoes are made, and the same applies to Stafford; whilst the Bristol area is largely concerned with the production of heavy working boots. There are several other centres of importance, but these are mainly places where isolated firms are established. In recent years there has been a tendency for a centre to begin to produce footwear like that made elsewhere; but there is no evidence to show that extensive changes in the character of the output in any district will be forthcoming.

*Personnel*

2. Although each area works within somewhat narrow limits with regard to the kind of footwear made, and although the raw materials used are very variable, most areas in the country provide instruction for operatives; and this follows very closely the requirements of the industry.

3. The Boot and Shoe Industry does not employ persons with a training in pure science. Indeed almost invariably the operatives and the executives begin early in the factory, with the result that there are not many persons employed who have had a secondary school education beyond 16.

Normal entry to the factories has been at 14 and, in general, a boy will enter one of the principal sections of the factory, i.e., the upper section, or the bottom section; which latter handles all the component parts of the sole, insole, and associated work. The rates of wages paid are governed by a National Agreement, and the selection for better-paid work is largely on merit. There are "key" jobs calling for much knowledge and skill. The foremen and managers are normally promoted operatives.

*Education*

4. The demand for full-time courses for executives is small but widespread. Important centres of technical education are London, Leicester, Street, Wellingborough, Northampton, and

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Norwich. Suggestions for the improvement of technical and general educational facilities have recently been made by a Working Party of the Board of Trade and are now receiving attention.

### *Certification*

5. The City and Guilds of London Institute award a full Technological Certificate in Boot and Shoe Manufacture. The Worshipful Company of Skinners offers prizes in connection with the Final Examination.

### *Reference*

The Report of the Board of Trade Working Party on the Boot and Shoe Industry.

## 3. CATERING

### *Scope of Work and Grouping of Personnel*

1. In this general category are included Hotels, Restaurants, Canteens, and Licensed Houses, each type having variations in size and character.

The whole represents a very important and widespread national industry, as yet inadequately provided with facilities for technical education and training.

2. The main groups of occupations concerned are: kitchen hands, chefs and cooks, counter hands, waiters and waitresses, chambermaids, supervisors and housekeepers, managers and manageresses, office and reception staff.

### *Educational Facilities*

3. A number of existing courses contribute to catering education, in particular those in Institutional Management, but apart from the London County Council Hotel and Restaurant School (Westminster Technical Institute) those designed by and for the industry are few in number.

Therefore, there is an urgent need for local Education Authorities to approach the industry with a view to its co-operation in the provision of other types of courses and practical training, in which there is scope for considerable development.

Day-time release is not at present customary but should be encouraged.

### *Qualification and Certification*

4. The City and Guilds of London Institute awards certificates in (a) Cookery for Hotels and Catering Establishments; (b) Advanced Cookery for Hotels and Restaurants.

Diplomas in Institutional Management are awarded by individual colleges, the course followed being full-time and of two years' duration. Certification in other subjects and at other levels is under consideration.

### *References*

Catering Wages Commission, Report (Ministry of Education and Ministry of Labour and National Service).

Interim Report of the Education Committee (from the Secretary, 23, Queen's Gardens, W.2—6d.).

Ministry of Education, Circular 109, Training for the Catering Industry, H.M.S.O., May, 1946—1d.

## 4. DOMESTIC EMPLOYMENT

### *Scope of Work and Grouping of Personnel*

1. This includes a range of employment connected primarily with private households but may overlap to some extent with the catering industry in relation to institutional domestic workers in schools, colleges, hospitals, hostels, clubs, and hotels.

2. The following groups are found within the scope of the employment :—

Cleaners.

Housemaids.

(Pantry men.)

Parlourmaids.

(Butlers.)

Cooks and cook "generals."

Sewing maids and laundry maids.

Personal or ladies' maids.

(Valets.)

Home helps and companion helps.

Housekeepers.

### *Training and Educational Facilities*

3. Training of young workers has been available through Domestic Trade Schools, and indirectly through Housewifery Schools or Home Training Schools of a pre-vocational type, the majority of which are situated in the London area. Domestic work is not a popular first choice of employment for the girls, and often other work is taken up initially ; later, the training is utilized if a congenial opening presents itself.

4. Short courses of training have been instituted from time to time to meet special needs or to rehabilitate older redundant workers from other employment.

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Training and/or experience are commonly gained in relation to home needs ; and in extremity, when need arises, are turned to account for gainful occupation.

### *Qualification and Certification*

5. Technical departments of Domestic Science Training Colleges and also some Technical Colleges provide full-time courses for cooks and for household management students. Numbers entering these courses have been limited to those who themselves or their employers were prepared to pay a relatively high fee and afford the time for attendance usually of three to five or six terms' duration. Part-time courses are very few.

Among establishments affording a widely varied curriculum are those in London, at Battersea and Buckingham Palace Road, and at Oxford.

The City and Guilds of London Institute certificates in cookery (ordinary grade) are sought by cooks needing a certificate of competence for upgrading purposes.

*Development.*—There is clearly room for organized training on a short intensive basis or on part-time day attendance for all domestic workers who carry responsibility.

Full provision in Technical Colleges and Institutes for well-graded progressive courses in domestic subjects for adult students should be recognized as a contribution to the education of women for employment, as financial necessity may demand at any time that a woman earns a living in the occupation for which home management has in part qualified her.

The Institute of Houseworkers, which has recently been established for the purpose of increasing the supply of trained workers, will be looking to authorities to help with the training. It is hoped that every assistance will be given.

### *Reference*

Report on Post-War Organization of Private Domestic Employment (Markham and Hancock), H.M.S.O., M.L.N.S., 1945. 6d.

## 5. FISHING INDUSTRY

### *Scope of Work and Personnel Employed*

1. The work is divided among the following main groups :—

- (i) Fishermen.
- (ii) Skippers and Mates.
- (iii) Engineroom Hands.
- (iv) Cooks.



*Educational Facilities*

2. Educational facilities for the training of the first three grades are provided by Local Education Authorities, by the industry, and by insurance companies connected with the industry. The Local Education Authorities in Hull, Grimsby, Fleetwood, and Lowestoft provide facilities for the training of fishermen, skippers and mates. At Hull there is a secondary technical school which provides a three-year pre-sea course; and at Grimsby a one-year pre-sea course. Courses for skippers and mates are provided in all the above-named ports.

3. Short practical courses for fishermen are provided in the fishing ports by the owners; and insurance companies provide theoretical training for engineroom hands. There is no training for trawler cooks at present.

4. In general, the training is limited largely to persons employed or wishing to be employed in the trawler industry. There are very few facilities for training in other forms of fishing. Recently a National Technical Education Committee for the whole of the Fishing Industry was established, and a report on an investigation into the facilities available has already been issued.

*Qualification and Certification*

5. All skippers and mates are promoted from among the fishermen after qualifying by statutory examinations carried on by the Ministry of Transport. Insurance companies also certify the training of engineroom hands. There is no certification required for trawler cooks.

Future plans for the industry are contained in the suggestions of the Technical Education Committee for the Fishing Industry, which outlines a system of recruitment and apprenticeship for the Trawling Industry.

## 6. FLOUR MILLING

*Classes of Persons Employed*

The three main groups are :—

- (i) Unskilled Workers.
- (ii) Skilled Roller Men.
- (iii) Managers.

*Educational Facilities*

The National Joint Industrial Council for the Flour-Milling Industry has a Technical Education Committee, and there are

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Regional Committees in addition ; but the facilities available are limited to evening classes, and as many flour mills are remote from centres of technical education, many of the personnel in the industry are compelled to follow a correspondence course which has been organized in association with the journal "Milling."

It is doubtful if pre-employment schools are needed, but there is scope for at least one national centre which can provide full-time courses for selected skilled workers and for the training of supervisors and managers.

### *Qualification and Certification*

The City and Guilds of London Institute, by arrangement with the Technical Education Committee, examine students at the Intermediate stage after two years' evening attendance, and at the Final stage after a further two years. The industry encourages students to sit for these examinations and grants prizes on the results. Further details may be obtained from the Flour Milling Employers' Federation, 52, Grosvenor Gardens, S.W.1.

## 7. FURNITURE INDUSTRY

### *Classification of Workers*

1. (a) Managerial staff.  
(b) Designers and draughtsmen.  
(c) Craftsmen, who may be engaged in working machine tools or else mainly in hand work.

The large number of small firms in some areas implies that a considerable number of responsible master men must have an understanding of design as well as of processes of manufacture.

2. The industry is fairly widespread. The main concentration is in and about London and in the Midlands. The chair-making industry (mostly small firms) is centred at High Wycombe. Steel furniture was manufactured mainly, but not entirely, in London and Birmingham before the war.

### *Educational Facilities*

3. The manufacturers of wooden furniture, including the High Wycombe chair manufacturers, have recruited employees from junior full-time courses in Art and Technical Schools. This type of lad may remain a craftsman or may rise to a fairly responsible post as foreman or as draughtsman-designer. There are few well-salaried designers in the furniture industry ; and it is exceptional for a student who has taken a full-time senior course in an art school to be appointed to such a post.

4. There is a fair amount of evening instruction for employees in the furniture industry throughout the country, and day attendance is not uncommon. Many firms look to the schools to teach hand methods and the completion of individual jobs ; to foster pride in craftsmanship and thus counter the highly sectionalized factory outlook. This is true, for example, of the Lancaster firms who co-operate with the School of Art. But there is scope for further development ; including better equipment for machine as well as hand methods, training in workshop management, and in costing.

#### *Qualification and Certification*

5. The Ministry's Art Examinations provide for furniture design ; and the City and Guilds award a Full Technological Certificate in Cabinet-making.

#### *Reference*

The Report of the Board of Trade Working Party on the Furniture Industry is now available.

## 8. GEMMOLOGY

#### *Scope and Personnel*

1. The ability to recognize and value precious and semi-precious stones is an important accomplishment for assistants employed in 'jewellers' shops. There are in the trade a number of highly skilled experts working as consultants, but for the bulk of jewellers' assistants only ordinary knowledge is required.

#### *Educational Facilities*

2. Courses have been held for many years at Chelsea Polytechnic ; the main course covers two years, and students take the preliminary examination of the Gemmological Association at the end of the first year, and the Diploma examination, which includes practical work, at the end of the second year. A few students stay on to do more advanced work, and it is interesting to note that a number of amateurs are attracted by this study.

3. There would appear to be a need for more extended provision, but it is only in the large towns that courses could be run continuously.

#### *Reference*

The Report of the Board of Trade Working Party on the Jewellery and Silverware Industry is now available.

## 9. GLASS INDUSTRY

*Scope of Occupation*

The glass industry, while one of the oldest craft industries, is now considerably mechanized ; and the scope for the highly skilled individual craftsman is confined mainly to the comparatively small domestic glassware section, and to the lamp blown and thermometer-making sections. In the sheet glass and other branches, the hand craftsmen have been largely replaced by skilled machine operators. The diverse character of the industry has produced special problems in the provision of appropriate training facilities.

*Main Classification of Personnel*

- (a) Glass technologists.
- (b) Glass engineers.
- (c) Designers and Craftsmen, including glass makers and decorators in the hand-made ware sections of the industry.
- (d) Glass house workers. Machine operators and maintenance staff.

*Educational Facilities*

(a) The Department of Glass Technology at the University of Sheffield is of international standing and provides full-time and part-time courses in all branches of the subject. Certain technical institutions have from time to time acted as contributory centres providing introductory courses leading up to the advanced instruction at Sheffield. This system should be developed at all centres serving areas in which the glass industry is located.

(b) Glass engineers at present in the industry are mainly men with general engineering training such as is obtained in a Degree or National Certificate course, who have gained their knowledge of glass technology by actual experience in the industry. The numbers are relatively small ; but the provision of post-graduate courses in technology for this type of personnel warrants consideration.

(c) The School of Art at Stourbridge has a national standing in connection with its courses for the training of designers and craftsmen in glass-making and decorating processes in relation to the domestic glassware section of the industry ; and specialist staff and equipment are available. Facilities also exist to a lesser extent at one or two other centres. At Stourbridge a full-time pre-employment course, and part-time courses for young workers engaged in the industry are provided. Training facilities for this section of the industry, largely located in this area, should be further extended and developed with careful consideration of the question of the



*extension* of research work concerned with technology, design, display and salesmanship.

(d) No specific training is at present provided for machine operators and maintenance staff in the glass industry ; but a composite course including engineering workshop technology and practice, and an introduction to glass technology, would be of value to them.

Difficulties will probably be met in the provisions of specialized accommodation and equipment for small numbers of students requiring courses in glass technology ; and in those cases the co-operation of industry should be sought with a view to the use of suitable works facilities.

#### *Qualification and Certification*

The University of Sheffield awards :—

(a) A Degree and a Diploma in Glass Technology on the results of students' work in full-time courses ;

(b) A Course Certificate in Glass Technology to students who successfully complete a four years' part-time course, the earlier portions of which may have been taken at a contributory centre ;

(c) Single-subject certificates in Glass Technology of various grades, to part-time students.

The art examinations of the Ministry of Education provide for glass design in making and decorating in connection with the award of the national diploma in design.

A professional qualification is available in the Fellowship of the Society of Glass Technology.

#### *References*

Information concerning recruitment and training of juveniles for the Glass Industry is given in the first report of the Education Committee of the Glass Manufacturers' Federation issued by them at " Orleans," Latymer Road, New Barnet, Herts.

## 10. GLOVE MAKING

### *Scope of Work and Grades of Personnel*

1. Preparation and dressing of skins necessary for use in the industry has already been dealt with under the heading of the Leather Industry generally ; and the grades of workers employed in this branch are of very similar types such as tanners, dyers, and finishers. Those grades of workers who are special to the leather glove making industry are mainly concerned with dressing, design, cutting, machining and making-up, finishing and laying-off. (The fabric and knitted glove industry is in effect a special branch

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of the textile production in such centres as Leicester, Nottingham, and Manchester, and closely associated with hosiery factories. General textile production is dealt with elsewhere.)

The leather glove industry has not hitherto been of any widespread importance, but has shown some recent indication of growth and development. In the past it has been associated mainly with a few special centres such as Yeovil, Worcester, Woodstock, and Carlisle ; *i.e.*, the larger centres of mainly agricultural districts. Of nearly 13,000 persons employed in June, 1945, rather less than one-third were men.

### *Educational Facilities*

2. In the past there has been no training available except for apprentices ; and the apprentice system has now virtually lapsed, with nothing at present to take its place. There is therefore need for pre-employment courses end-on to the school-leaving age, and for part-time day education for young workers.

3. The industry has not, so far, assisted technical education ; but some interesting proposals have recently been made by the Yeovil manufacturers for a four-year apprenticeship, the first two years of which shall be spent full-time on a course in glove-cutting, and the second two years in the factory. It is intended that apprentices shall be indentured to a particular firm, and paid standard scales. Maintenance allowances will probably not be necessary, but the payment of travelling expenses may be considered. The syllabus will be drawn up by the National Association of Glove Manufacturers, and with the concurrence of the Trade Unions concerned.

(At present there is a great shortage of cutters ; about 100 would be wanted to be trained over the next three years, with 12 annually thereafter.)

The Yeovil scheme also includes the provision of scholarships, and courses of instruction at local technical colleges. There is certainly a distinct need for higher technical education on a regional basis centred, *e.g.*, at Yeovil, Worcester, Manchester, South Wales, on the North-East Coast, and in Cumberland ; with possibly a national centre in London. Arrangements would thus be linked up closely with the leather and leather-using trades.

4. Research work should be encouraged in conjunction with local technical colleges.

### *Qualification and Certification*

5. At present there are no arrangements for certification, but it is hoped that the Worshipful Company of Glovers will undertake this after the new courses suggested above in connection with Yeovil have been established.

## 11. HAIRDRESSING

*Scope of Trade*

1. Though few women are employed in gentlemen's saloons, men often hold the most responsible posts as skilled craftsmen in ladies' saloons. The total number of people now employed is around the 100,000 mark.

A minimum of three years' apprenticeship is advocated by the trade, with a normal age of entry of 16 years, on a three-year indenture basis.

Craft training in the saloons under supervision includes shaving, haircutting, shampooing, waving, hairdressing, bleaching, tinting, dyeing, manicure, massage, and boardwork or wig-making ; while suitable training in personal contacts, only obtainable in the saloons, is emphasised by the trade.

*Educational Facilities*

2. (i) Two full-time pre-vocational courses are available in London, and one full-time course in Glasgow.

(ii) The three national bodies concerned, namely, the National Hairdressers' Federation, the Hairdressers' Registration Council, and the Incorporated Guild of Hairdressers have co-operated on a national education committee for the trade and on a regional body, the Yorkshire Council for Further Education. The formulation of courses and schemes of work on the basis of part-time day attendance of apprentices has resulted in the provision by authorities of 15 courses.

*Qualification and Certification*

3. The City and Guilds of London Institute have set up an exploratory committee to consider the question of certification.

*Development*

4. No widespread provision of full-time junior courses is considered essential by the trade, though it is felt that the major centres of population, in addition to London and Glasgow, would benefit. There is scope for extensive provision of educational facilities on a basis of part-time day attendance.

Teacher training courses for skilled craftsmen are also urgently required.

*References*

A Course for Apprentices in Hairdressing, 1944—3d. (Yorkshire Council for Further Education). Curriculum for Apprentices, issued by the Hairdressers' Registration Council.

## 12. LAUNDERING

### *Scope of Work and Personnel Employed*

1. The main groups of workers requiring further education are sorters, wash-house men, calender hands, machine process workers, packers, transport and office staff, supervisors and manageresses.

### *Educational Facilities*

2. For the technician grades of workers, part-time evening courses in laundry technology of two or three years' duration are arranged in conjunction with the Institution of British Launderers in technical colleges; also at the Institution of British Launderers' offices, together with classes in such subjects as staff training and advertising. Nevertheless, development of provision for manipulative and process work is desirable. In the higher grades, courses of three months' duration are available at the laboratories of the British Launderers' Research Association. Research has also been carried out at Manchester and a few technical colleges elsewhere.

A university scholarship is offered by the Institution of British Launderers to study for the B.Sc. degree.

### *Qualification and Certification*

3. Hitherto the only certificate is that awarded by the Institution of British Launderers in Laundry Technology, after a two-year part-time course and examination. As from session 1946-47 a scheme of certification under the regulations of the City and Guilds of London Institute in Laundry Technology comes into operation, with examinations at the Intermediate and Final stages, for a full Technological Certificate, including Textiles and Laundry Engineering, or Business Administration.

For a few of the controlling staff in the larger laundries a science degree with Textile Chemistry bias—as at Manchester, Leeds, and Bradford, or higher technical education on a regional basis, with opportunities for research, would be useful.

### *Reference*

Further information can be obtained from the Institution of British Launderers, 16, Lancaster Gate, London, W.2.



## 13. MERCHANT NAVY

*Scope of Work and Personnel Employed*

1. The work is divided among the following main groups :—

1. Deck Ratings.
2. Deck Officers.
3. Engine Room Officers.
4. Radio Officers.
5. Firemen.
6. Sea Cooks.

*Educational Facilities*

Arrangements for training for the various grades are made by

- (a) The Merchant Navy Training Board.
- (b) The Shipping Federation.
- (c) Voluntary Organizations.
- (d) Local Education Authorities.

The work under (a) and (b) is grant-aided by the Ministry, and some of the work of the voluntary organizations also receives grant-aid.

2. The Merchant Navy Training Board, which is representative of industry, the colleges, and Government Departments, is now responsible for advising on the vocational educational needs of all sea-going personnel. It also makes arrangements for the annual examination of apprentices while they are at sea. It has recently published reports on the post-war educational needs of Deck Officers and Ratings, and on the training of Engineer Officers and Firemen. The Board is preparing other reports concerned with the other grades of personnel.

3. The Shipping Federation make themselves responsible for the placing of most of the apprentices ; they also administer certain schools for the training of ratings, firemen, and sea cooks.

4. Local Education Authorities provide facilities for both pre-apprentices and officers ; London, Hull, and Cardiff provide secondary technical schools for pre-apprentices ; London also provides one boarding establishment, and University College, Southampton, has a residential pre-sea apprenticeship course.

Courses for officers are carried on in London, Southampton (University College), Plymouth, Cardiff, Liverpool, South Shields, and Hull.

5. There are various voluntary organizations and private bodies which provide training for the sea. The most well known are the three public schools, H.M.S. Worcester, H.M.S. Conway, and Pangbourne Nautical College ; the training ships Mercury (apprentices and R.N.) and Arethusa (ratings and R.N.) ; the

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Lancashire and National Sea Training Homes (ratings) which has recently amalgamated with the T.S. Indefatigable ; and two schools carried on by Dr. Barnardo's Homes. There are a number of other private schools not recognized.

6. Day and evening classes in Mechanical Engineering for apprentices who wish to become Engineer Officers in the Merchant Navy are conducted by the Local Education Authorities of many towns and seaports. Courses for Officers are provided in London, South Shields, Liverpool, and Cardiff.

7. Nearly all educational facilities for radio officers are provided by private non-grant-aided schools.

8. Under normal peace-time conditions the facilities available for the training of ratings and deck officers have generally been adequate, although there is room for improvement in the methods of training. But there has always been a dearth of adequate facilities for pre-apprenticeship training ; and it is likely that the National College proposed by the Merchant Navy Training Board will be established in the near future.

### *Recruitment and Certification*

9. Apprentices are recruited at about 16 years of age, and serve a four years' apprenticeship. They qualify as officers at 20 on passing the statutory examination of the Ministry of Transport for Second Mate. Two further statutory examinations qualify for First Mate and Master respectively.

10. Engine Room Officers are recruited from among qualified engineers who have served their apprenticeship ashore. After a period of service at sea, they qualify as engineer officers on passing the statutory examinations for Second Engineer Officer and Chief respectively.

11. Radio Officers are qualified before they go to sea. Their examinations are controlled by the Postmaster-General.

### *References*

Regulations for Examination of Masters and Mates in the Mercantile Marine. H.M.S.O., 1932, 2s.

Regulations for Examination of Engineers in the Mercantile Marine. H.M.S.O., 1945, 1s.

(Note of any current modifications may be obtained from the Ministry of Transport in conjunction with the Board of Trade.)

The Merchant Navy Training Board (65A, Fenchurch Street, E.C.3) will give any further information desired in relation to their reports mentioned in (2) above.

## 14. METALLURGICAL INDUSTRIES

(Ferrous and Non-Ferrous)

*Main Classification of Personnel*

1. The main groups requiring further education are :—

- (a) Managerial staff—partly technical ;
- (b) Executive staff—mainly technical ;
- (c) Laboratory personnel—research and senior staff, and routine workers ;
- (d) Operatives.

*Educational Facilities*

2. Facilities for post-graduate training are at present very limited. An extension of the provision of such courses, mainly of a specialist character, is required ; and a National College of Metallurgy is needed, located probably in the West Midlands, to act as a focal centre for the development of this work.

3. Courses of instruction for laboratory staff, minor executives, and technical staff in general, are provided at technical colleges serving the areas in which metallurgical industries are located ; but much development of these is required, especially at some important centres of the industry where the accommodation and equipment at the local colleges are totally inadequate. The provision at each centre should be reviewed in the light of the requirements of the new National Certificate Scheme in Metallurgy.

There is need for additional courses of a simple background type for operatives.

4. The general position with regard to voluntary release for part-time day courses is favourable, and compulsory part-time day release will probably be arranged without undue difficulty. The co-operation of industry should be sought in securing the release of selected students over the age of 18 years and in the provision of specialist lecturers for day-time courses.

One year pre-vocational courses, end-on to secondary school courses at about the age of 16 years, should be explored.

Only a limited number of special scholarships are at present available.

*Qualification and Certification*

5. The qualifications looked for in the case of those filling the higher technical posts are a University Degree, a Diploma such as

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the Associateship of the Royal School of Mines (A.R.S.M.) or the Assoc. Met. of Sheffield University, the Fellowship (F.I.M.) or Associateship (A.I.M.) of the Institution of Metallurgists or Membership of the Institution of Mining and Metallurgy—in the case of certain sections of the industry. The supply of qualified metallurgists has for some time failed to meet current needs.

6. For other technical staff, certification is provided for by the new Ordinary and Higher National Certificates in Metallurgy and by certificates awarded by the City and Guilds of London Institute. The latter also awards certificates in connection with operatives' courses.

### *References*

The following publications contain various particulars relating to training and qualification :—

Training of Metallurgists (with special reference to the Iron and Steel Industries), published by the Iron and Steel Institute, 4, Grosvenor Gardens, S.W.1.

Conditions for the Award of National Certificates in Metallurgy (Ministry of Education, Rules 111).

National Certificates in Metallurgy (Circular No. 1—July, 1945), giving particulars of standards set, issued by the Joint Committee for National Certificates in Metallurgy, 4, Grosvenor Gardens, S.W.1.

Metallurgy—A Scientific Career in Industry. (Joint Committee on Metallurgical Education, 4, Grosvenor Gardens, London, S.W.1.)

Institution of Metallurgists—Regulations for the Admission of Licentiates, Associates, and Fellows—Institution of Metallurgists, 4, Grosvenor Gardens, S.W.1.

Institution of Mining and Metallurgy—Constitution and By-laws, giving particulars of Membership. (Offices of the Institution, Salisbury House, Finsbury Circus, London, E.C.2.)

## 15. MUSICAL INSTRUMENT MANUFACTURE

### *Scope of Work*

1. The industry employs 10,000 workpeople, the majority of whom are associated with five large firms established in the North London district ; but there are many smaller firms in the large centres of population throughout the country.

The export trade was increasing before the war.



### *Grades of Personnel Employed*

2. The main groupings of the industry and typical workers associated with them are as follows :—

<i>Pianoforte Industry</i>	<i>Organ Building</i>	<i>Band Instrument Making</i>
Technicians and Scale-makers (Draughtsmen)	Technicians and Draughtsmen	Bell makers
Back makers	Voicers	Spinners
Bellymen and Markers off	Bench Craftsmen	Valve makers
Case and part makers	(a) for Consoles	Assemblers
Stringers	(b) for Soundboards	Slide makers
Finishers and Regulators	(c) Electrical and Action technicians	Turners
Tuners and Toners	(d) Wood pipemakers	Fitting makers
Polishers	(e) Bellows hands	Polishers and Finishers
Woodworking machinists	Metal pipemakers	
	Turners	
	Woodworking machinists	

### *Educational Facilities*

3. The Northern Polytechnic department of the Music Trades acts as a national centre of instruction. A high concentration of the industry in the immediate area justifies the location. Courses comprise full-time day post-secondary course, part-time day courses, pre-employment school, and evening classes.

4. Part-time day attendance has been customary for 25 years— $2\frac{1}{2}$  days per week during the first year, and 1 day per week up to about 19. After that, students attend in the evening to learn further sections of the craft. There are no *sandwich* courses.

Higher technical education in the craft is available at the Northern Polytechnic.

5. The industry assists by gifts of equipment, by casting frames, and in many other minor ways. Pianos for repair are sent by schools, hospitals, and asylums.

Scholarships tenable at the Northern Polytechnic are awarded by the industry.

### *Qualification and Certification*

6. The school-leaving certificate of the Music Trades School of the Northern Polytechnic has national currency. Further qualifications are awarded by the Institute of Musical Instrument Technicians.

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### *Research*

7. Research and consultative work is carried out at the School. New materials and substitute materials (timber, wires) are investigated—the industry has no research association. This activity is ripe for expansion.

## 16. NEEDLE TRADES

### *Scope of Work and Classification of Personnel*

1. "Needle trades" is an omnibus title for a group of industries comprising in both their wholesale and retail aspects the following :

- (a) Heavy clothing industry (men's wear, women's tailored garments, i.e., mantle trade).
- (b) Light clothing industry—gown and dress, shirt and overall, underwear, corset, and knitwear manufacture.
- (c) Bespoke tailoring (men's and women's garments, but mainly men's).
- (d) Millinery (hat and cap) trade, together with artificial flower making and dress accessories.
- (e) Soft furnishing trade.
- (f) Embroidery, hand and machine, related to (b), (d) and (e) above.

The wholesale clothing trade on a factory basis employs approximately 75 per cent. of the total number employed ; the bespoke trade in tailoring and the retail gown trade are carried on in comparatively small workrooms, and, in the case of the former, a large proportion of the sewing work is done by outworkers.

The majority of those employed are women and girls, although men only are employed as cutters and fitters for the bespoke trade, and as cutters both for the heavy clothing industry and for the soft furnishing trade ; men far outnumber women as designers for the heavy clothing industry. At one time, the bespoke trade was staffed entirely by men at all levels, as tailors, cutters, fitters and managers ; now, some of the sewing is done by tailoresses.

2. There are at least three main types of organization in the industry :—

- (a) Clothing factories for mass production on a large scale with up to 10,000 employees (approximately 10 per cent. of these would be employed as cutters), organised chiefly for men's wear with a team of possibly 50 working on one garment, e.g., a coat.

(b) Clothing factories of a smaller type or workshops of 25 to 50 employees for the high-class gown or mantle trade, with a team of two or three employees completing the making-up of one garment. Large retail store workrooms cater for high class gown, lingerie, and children's wear, as well as for (d), (e) and (f) above, and sometimes (c).

(c) Workrooms—often family undertakings with few employees, readily adapting themselves to the ebb and flow of trade.

3. The broad divisions of the wholesale trade include designers and cutters ; supervisors, forewomen, and charge hands ; machinists—sectionalised according to process or type of garment, i.e., button-hole, trouser, vest, jacket machinists ; and pressers, according to machine, and not usually interchangeable. Individual firms have their own methods of breaking up the work into its component parts for mass production ; and there is no detailed classification which applies to all firms.

#### *Educational Facilities*

4. Leeds has traditionally been considered the centre of the wholesale clothing industry ; the College of Technology has a flourishing clothing trades department, the result of the interest, confidence and co-operation of the local industry. Lack of adequate premises prevents expansion of training facilities. Even under present restrictions the department presents more candidates for the appropriate examinations of the City and Guilds of London Institute than any other similar institution in the country.

For the knitwear trade the Leicester College of Art and Technology makes a very considerable contribution towards training the personnel required.

5. With the movement of industrial undertakings before the war to areas where labour was available, the clothing industry has become more widespread, but educational provision has not kept pace. There are now many districts presenting a few candidates for the City and Guilds of London Institute examinations where much more comprehensive educational provision should be made in co-operation with industry. In Leeds, part-time day attendance has developed out of successful evening courses, and, together with apprenticeship schemes, forms a valuable contribution to the industry. Pre-vocational training has not made a substantial contribution to the wholesale section of the heavy clothing industry and is not generally considered of the same value as vocational training alongside factory experience, as in part-time day attendance.

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For the bespoke trade there is one pre-vocational school for men's tailoring and at least six for ladies' tailoring in the London area, and two or more for the latter in the provinces. The West End trade appears to be growing, but is handicapped by a shortage of recruits, partly due, no doubt, to lack of recognized training schemes with opportunities for promotion to qualify for better rates of pay. There are no industrial arrangements for training, other than a learner apprenticeship; and no indentures. The trade have been asking for adequate vocational education, would welcome increased provision for full-time training and would agree to part-time day attendance of young employees at vocational training courses. It is obvious that facilities at present are quite inadequate; considerable help is required from technical colleges, and the trade will no doubt be willing to co-operate.

In the high-class gown trade, however, the pre-vocational schools of the London area, Liverpool, Manchester and Cambridge have proved a valuable asset. The soft furnishing trade is largely concentrated in the London area; and the pre-vocational training is well established, and its value recognized.

6. The importance of the whole scope of the industry in the metropolitan area, and of London as a fashion centre, cannot be over-emphasized; and educational facilities in this connection should be second to none.

### *Qualification*

7. The City and Guilds of London Institute awards three grades of certificate in tailoring, wholesale and retail; and recently a provisional two grades for the gown trade. Preparation for the Full Technological Certificate usually involves a training period of 3 to 5 years on a part-time basis, 1 to 1½ days' attendance, plus one or more evenings attendance. This Certificate can be based on garment design or on management and costing, and entries vary according to the weight of the local educational provision.

8. Dress design and embroidery are included in the Art examinations of the Ministry of Education, and embroidery, both hand and machine, are included in the City and Guilds of London Institute provision for certification.

9. There is no scheme of certification for those engaged in the soft furnishing trades.

### *References*

Publications of the Yorkshire Council for Further Education:—

Further Education for the Clothing Industry, 1935, 7d.

The Reconstruction of Further Education (section on the clothing industry), 1943, 1s. 1d.



## 17. NURSING AND KINDRED SERVICES

*Scope of Work and Types of Personnel Employed*

A. Hospital Nurses.

B. Health Visitors, School Nurses and Industrial Nurses.

C. Nursery Nurses.

A. *State Registered Nurses.* (Examination, certification and registration controlled by General Nursing Council.) There were 89,206 registered nurses in 1937, rising to 100,607 in 1945. 12,000 is the estimated number of recruits required annually. 9,624 candidates entered for the qualifying examination in 1937. 25 per cent. to 30 per cent. is the estimated loss during the first year of probation.

The average age of entry to hospital training is 18 years, but children's and some special hospitals recruit at 17 years; the lower age has been adopted to overcome the shortage of recruits. 17½ years is the minimum age of entry for the first examination, i.e., Preliminary, State Examination, Part I. 21 years is the minimum age of acceptance on the Register.

Three years is the minimum training period, and depends on the hospital's recognition by the General Nursing Council for all aspects of the training. 4 years' training allows for some specialization, as well as the State Registered qualification.

Supplementary training :—

(a) Nursing of sick children.

(b) Nursing in infectious diseases hospital.

(c) Nursing in mental cases hospital.

(d) Nursing mental deficient.

(e) Midwifery training for Central Midwives Board Certificate, Part I, maternity nursing (6 months training for S.R. nurses), Part II, midwifery (12 months training for S.R. nurses).

NOTE.—For others, complete training requires two years.

*Grades of Nursing Personnel and Qualifications*(i) (a) *Probationary Assistant Nurses* in training or not enrolled.

(b) *Assistant Nurses*, enrolled, experienced but not necessarily trained (G.N.C. Roll of Assistant Nurses).

(ii) *Staff Nurses*—fully qualified nurses, i.e., S.R.N., may or may not hold posts of special responsibility.

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(iii) *Sisters*—fully qualified nurses, *i.e.*, S.R.N., with or without supplementary qualifications :—

(a) Ward Sisters.

(b) Night Sister.

(c) Departmental Sister, *e.g.*, theatre or out-patients department.

(d) " Private Home " Sister.

(e) Home Sister.

(f) Housekeeping Sister, holding Housekeepers Certificate.

(g) Sister Tutor, holding Sister Tutor's Diploma.

(iv) *Superintendent Nurse*—*e.g.*, Night Sister or Head Nurses' Training School.

(v) *Assistant Matron*—probably holding Nursing Diploma of London or Leeds University and Certificate of Hospital Administration.

(vi) *Matron*.

NOTE.—Only large hospitals carry all grades independently, smaller hospitals combine grades, *e.g.*, Sister Tutor and Assistant Matron.

### *Educational Facilities through Local Education Authorities*

After 1937, the G.N.C. approved a scheme with the Board of Education whereby intending nurses could attend full- or part-time courses arranged in secondary schools or in technical colleges, in order to qualify for Preliminary State Examination, Part I, at the age of 17½ years, before entering hospital for training.

The difficulties of arranging approved courses, and problems of the war period, have handicapped the scheme ; between 1940 and 1943 only 205 candidates qualified in Part I before commencing their hospital training.

Pre-Nursing Courses allow intending nurses to study under better conditions than are possible when they become members of the nursing staff of a hospital ; practical experience is inevitably exacting. Many hospitals have long-established training schools to allow student nurses to progress by easy stages into full hospital training ; but all recognize that good general education is the first qualification for successful training, and would wish all their recruits to benefit by a complete secondary school course—including sixth form work before sitting for Preliminary Part I, or by following a Further Education course to the same stage, if full-time schooling has ceased at an earlier age. In the latter case some Authorities have established a central school or a secondary technical school

for girls with a bias towards "health subjects" and practical training, in preparation for a Pre-Nursing Course.

Many technical colleges have worked in close co-operation with hospitals; providing staff to supplement the work of Sister Tutors on hospital premises, providing courses in invalid cookery, and—less frequently—in anatomy, physiology and hygiene on technical college premises. The major colleges have held refresher and advanced courses for fully qualified nurses. There is scope for considerable extension of these services; but suitable premises and teaching staff with qualifications to conform with General Nursing Council requirements, are essential.

#### *Additional Training Courses for Trained Nurses*

- (a) Health Visiting, 6 months. Approved course (Ministry of Health).
- (b) Industrial Nursing, 3 months. (Minimum age of entry 27 years.)
- (c) Sister Tutors; one year full-time course.
- (d) Dietetics; 18 months' full-time course.
- (e) Nursing Administration; one year full-time course.
- (f) Diploma in Nursing; two years part-time course—University of London.

#### *B. District Nurses, Health Visitors, School and Industrial Nurses*

1. *District Nurses*, fully qualified nurses with training approved by Queen's Institute of District Nursing and holding Central Midwives Board Certificate.

2. *Health Visitors, and School Nurses* are State Registered Nurses who have taken Public Health Services training as approved by the Ministry of Health or have attended approved courses as arranged by the Royal College of Nursing, Battersea Polytechnic, King's College of Household and Social Science, Bedford College for Women and Manchester College of Technology.

The Royal Sanitary Institute is the examining body for the Health Visitors' Certificate.

NOTE.—A two-year course in Public Health work is an alternative requirement to the S.R.N. qualification for Health Visitors, but must be supplemented by six months' hospital training. All intending Health Visitors must hold the C.M.B. Certificate. Grants towards training are made by the Ministry of Health.

Technical Colleges have provided courses of lectures and refresher courses for Health Visitors and School Nurses, from time to time, in co-operation with Medical Officers of Health.

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### *Industrial Nursing*

3. The Royal College of Nursing holds courses of training on industrial nursing for State Registered Nurses, sets examinations and awards certificates.

NOTE.—The Ministry of Labour and National Service arranged for shorter courses during the war period and took financial responsibility ; but no certificates have been awarded.

### *Industrial First Aid or Ambulance Services*

4. The Factories Act, 1937, Section 45, requires that in every factory employing more than 50 persons the person in charge of each First Aid Box must be trained in first-aid treatment. For efficiency, re-certification at regular intervals of at least three years is strongly encouraged.

Qualifications :—stages : Certificate, Voucher, Medallion.

St. John Ambulance Association.

Red Cross Society.

St. Andrew's Ambulance Association.

5. Technical Colleges undertake this work, providing a one-year course to supplement the Voucher qualification. The Home Office do not issue a certificate, but accept a technical college internal certificate of proficiency ; e.g., Huddersfield Technical College. Refresher Courses are held for industrial ambulance or First Aid personnel.

### *C. Nursery Nurses*

1. Nursery Nurses are required by :—

(i) Private households.

(ii) Public Homes, Orphanages and Institutions.

(iii) Public Day and Residential Nurseries.

### *Training and Qualification*

2. Private "Training Colleges" have long had established courses for this work, chiefly to meet the needs of private households, e.g. :—

(a) The Norland Nursery Nurse Training Establishment.

(b) The Princess Christian Nurse Training Institute.

3. Voluntary Associations working with Public Health Authorities have established training schemes in connection with practical work in Nurseries :—

(a) Maternity and Child Welfare Association.

(b) Association of Day Nurseries.

(c) National Society of Children's Nurseries.



4. The Ministry of Health together with the Ministry of Education arrange training and certification of nurses and helpers in war-time Nurseries, e.g., Child Care Reserve Certification and Diplomas.

5. The whole position is now clarified by the institution of a National Nursery Certificate, examinations to be conducted by a Joint Examining Board (see Circular 59 of the Ministry of Education). The technical colleges have given considerable assistance to voluntary associations in the provision of courses to meet the requirements of various certificates in Nursery Nurse training. The future under the National Scheme of Certification will make greater demand in establishing courses on a wider basis of general education.

6. In the past, pre-vocational schools for girls have provided a very useful preliminary training before entry to nurseries for practical training.

### *References*

Athlone Committee Report (Ministry of Labour and Board of Education), 1938, H.M.S.O.—1/6.

General Nursing Council, Rules—1/—.

Royal College of Nursing, "Nursing Reconstruction Committee" Report, 1943.

Nurses' Salaries Committee, First and Second Reports and Supplement, 1943, H.M.S.O.—9d.

Board of Education Circulars—Pre-Nursing Courses in S. & T. Schools :—1471, 1939; 1568, 1941 : and Addenda 1942 and 1943.

Circular 105 (1946) consolidates and amplifies the foregoing.

## 18. PAPER MAKING

### *Main Classification of Personnel*

1. There are two main groups of personnel concerned :—

(i) Qualified chemists, physicists and engineers.

(ii) Skilled paper makers, who operate the processes for the production of various grades from very fine hand-made papers to machine-made papers of all types, down to the coarser grades of newsprint and kraft, together with board making.

### *Educational Facilities*

2. The training of group (i) is on broad scientific lines as indicated in the relevant Section of this pamphlet. In group (ii) the isolation of paper mills has often restricted opportunities for

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technical training to a few technical colleges in the main paper-making districts, such as Kent and Lancashire. An appropriate increase in the time allotted to science subjects in the curricula of the local secondary schools would provide a suitable foundation for the much-needed increase in facilities at technical colleges, which will doubtless be called upon to provide instruction at medium levels. A moderate standard in physics, chemistry, and engineering, including the production and utilization of steam and electricity, is required ; as well as knowledge of paper-making processes.

3. The Paper Makers' Association co-operates in furnishing technical information and in recommending suitable teachers from industrial sources. Higher technical work should probably be concentrated in London and Manchester. Correspondence courses on Paper Technology for isolated students could be run by the technical colleges with occasional tutorial guidance.

### *Qualification*

4. At the higher levels science degrees are commonly taken by engineers, chemists, and managers. The F.R.I.C. in this special subject is generally recognized throughout the country ; as is the Associateship of the Manchester College of Technology in Paper-Making. At the skilled craftsman level, the full Technological and subject Certificates of the City and Guilds of London Institute are much valued in the industry. The whole standard of instruction needs raising ; and the Committee of the Paper Makers' Association, Melbourne House, Aldwych, W.C.2 (from which information may be obtained) has the matter under consideration.

## 19. PHOTOGRAPHY

### *Scope of Work*

1. The main bases of this occupation may be said to be three, being related primarily to (A) Optics and Mechanics ; (B) Chemistry ; and (C) the manipulation of photographic *media* by artists and craftsmen. The first is concerned mainly with the operation, maintenance and improvement of apparatus adapted for (i) portraiture ; (ii) commercial and industrial work ; (iii) cinematography ; and gives opportunity for such experts as camera operators, illuminators, lens, filter, and shutter makers, studio and model designers.

2. The second division is concerned mainly with the management, adaptation, and improvement of the various chemical substances and reagents required to produce the desired effects from

the exposed negative ; and gives opportunity for experts on preparation and sensitivity of plates and films, methods of development, intensification, and reduction, effects of printing and toning on various *media*, making of lantern slides and transparencies. The core of this second division qualify as industrial chemists, and their general recruitment and training is dealt with elsewhere. The rest of this memorandum is concerned mainly with the first division.

3. The third division is concerned mainly with the operation and manipulation of apparatus, materials, and *media* to secure the desired result.

#### *Grades of Workers Employed*

4. The few large firms producing photographic materials and apparatus employ at the highest levels managing directors, camera designers, and optical experts who are constantly making practical photographic experiments with a view to improving their apparatus, as do also the various cinematograph industry units. A few of the larger commercial and advertising undertakings also have their own photographic branches. Press Photography also offers opportunities ; and independent studio portraiture will no doubt revive. There are also a few free-lance photographers who have made names for themselves by reason of their original methods and exceptional artistic ability ; they may be employed for advertising of a high grade as well as in portraiture and some other branches.

5. As in Printing, the Art content looked for is very high ; but as yet not enough firms want to recruit well-trained employees or to make use of the colleges for evening and day attendance classes. The industry is so largely concerned with various forms of publicity that it gains an importance in the public eye out of all proportion to the numbers employed, who are relatively few although there is room for a considerable expansion in the cinematograph industry.

#### *Educational Facilities*

6. In London, at the higher levels the School of Photo-Engraving and Lithography (Bolt Court, E.C.4) and the Regent Street Polytechnic provide special full-time courses.

At the intermediate levels, the Harrow Art and Technical Schools collaborate usefully with Kodak Works, and successful films have been made. The growing importance of photography for advertising has led to an increased demand for this subject. The Bloomsbury Trade School for girls caters for retouchers and camera operators. Part-time general courses are widely available, including those at the colleges of art at Leicester and Nottingham, and the art schools at Canterbury and Northampton.

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7. There may well be need for an extension of facilities in relation to pre-employment trade courses, but narrow specialization should be avoided in art schools. Although a good knowledge of photography will help many students in their careers, comparatively few will specialize in photography alone.

In the lower grades, such as retouchers, a pre-employment course should suffice ; but for higher grades senior full-time courses should be provided.

8. The Royal Photographic Society has recently issued a statement on the need for good arrangements in post-war education for photography ; but only a few firms at present operate a part-time attendance system. The industry does, however, give assistance by means of provision of technical equipment and part-time day staff. There is a scholarship in cinematography offered at the Regent Street Polytechnic.

### *Qualification and Certification*

9. The City and Guilds Institute provide intermediate and final examinations in *still* photography, awarding a full Technological Certificate. There may also be scope for an Art Certificate. Cinematography does not at present seem to be provided for at all, although a scheme for examinations therein and in microphotography was at one time under consideration. The British Kinematograph Society and the Institute of Cine-Technicians are considering schemes of training and examination.

## 20. POTTERY INDUSTRY

### *Main Classifications of Personnel*

1. The industry provides work for a large number of highly skilled craftsmen and decorators including, on the decorating side, painters, enamellers, engravers, printers, tile draughtsmen, transferers, ground layers, and gilders ; and, on the making side trowers, turners, modellers, mould makers, casters, cup and bowl makers, dippers, dishmakers, faience makers, hand basin and chamber makers, hollow-ware pressers, jiggerers and jolleyers, plate makers, saggar makers, saucer makers, slip makers, and tile makers.

There are a few art directors who have a good status, and many designers.

### *Educational Facilities*

2. The industry is mainly centred in North Staffordshire in and around Stoke-on-Trent ; but there are important individual potteries and groups of potteries in other parts of the country, for



example, at Derby, Worcester, Chesterfield, Poole and in the South-West.

3. The firms look to art and technical schools to provide training for their workers. The North Staffordshire Technical College Pottery Department is of international standing, and provides (a) full-time and part-time courses in all branches of pottery technology, (b) a pottery managers' course and (c) courses in specialized pottery subjects. Provision is made for young workers liberated from their employment for attendance at the College for a general course which includes experience in a wide range of pottery-making crafts. The Stoke-on-Trent Art Schools have for many years run a junior art department for youngsters who enter the pottery industry as decorators or as craftsmen, as well as providing day attendance and evening classes throughout the district. Senior students from the school have also entered the pottery industry as designers after taking full-time courses.

4. Proposals have been put forward by the industry for a new scheme of apprenticeship providing for attendance from work for the equivalent of six months a year vocational and other training for indentured apprentices between the ages of 16 and 18. The scheme will call for improved educational arrangements in the Stoke-on-Trent area; and plans are now under way for a well-equipped Craft Training School. In the case of potteries outside the area, it is recommended that preliminary training should be given locally; and that apprentices should then be sent forward to the above school, in connection with which hostel facilities will be required.

The proposals also envisage the attendance of selected employees over the age of 18 for similar periods of instruction; and in relation to this and other advanced work, a National College of Ceramics will probably be established in the Potteries area with facilities for the highest stages of technical and craft training, combined with the highest degree or development on the artistic side of the industry.

5. Devon provides the largest concentration of pottery manufacturers outside the Stoke-on-Trent area; and developments are now taking place at Exeter Art School in order to provide comprehensive training for employees in the industry. A preliminary course under the National scheme has been established at the Worcester Victoria Institute; and similar courses are under consideration at other centres.

#### *Qualification and Certification*

6. Certificates are awarded by the North Staffordshire Technical College, including a Pottery Managers' Certificate; and craft

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Diplomas by the Burslem Central School of Art and Crafts and its associated art schools. These have acquired a national currency. The Art Examinations of the Ministry of Education provide for pottery, terra-cotta work and tiles.

### *References*

Particulars of the new scheme of apprenticeship for the Pottery Industry referred to in paragraph 4 above, may be obtained on application to :—

The National Joint Advisory Committee for Pottery Apprenticeship,  
9, Birches Head Road,  
Hanley,  
Stoke-on-Trent.

The Report of the Board of Trade Working Party on the Pottery Industry is now available.

## 21. PRINTING

### *Scope of Work*

1. The main branches of work covered are Design, Typography (including hand and machine composition, and letterpress machine work), Lithography (including lithographic artists' work and lithographic printing), Book-binding by various methods, Process Engraving, Electrotyping and Stereotyping, Costing and Estimating ; and Miscellaneous Subjects of a subsidiary or specialist nature such as various Book Crafts, Press Proofing, Knowledge of Paper Varieties and Qualities, Newspaper work and Procedure, Proof Reading.

### *Grades of Workers Employed*

2. Some of the larger firms employ highly skilled designers and typographers as specialists, while the smaller firms may have to entrust design and typography to a man also engaged in hand composition. Broadly speaking, the tendency is for the better grades of workers to specialize in one of the branches mentioned in Section I above (and possibly in another closely related or subsidiary branch) since the normal method of promotion is from the ranks to management of a department.

### *Educational Facilities*

3. The provision by art and technical schools throughout the country is probably more complete than for any other branch of artistic industry. The trade takes a widespread interest in training, and supports generally the idea of day attendance, with the

exception of the smallest firms ; and gives a large amount of help by means of the provision of technical equipment and day staff. There are no serious deficiencies in training.

While the general picture is satisfactory, there is room for development on such lines as greater regional co-operation to enable all employees to receive the specialized instruction they need.

4. The present arrangements in the printing schools for the full-time training of those entering the industry at different grades can be developed as required, and should provide a sufficient stream of good recruits ; but in the matter of apprenticeship the Typographical Union will not at present consent to indenturing after the age of 16, although it is understood they will discuss the implications of the raising of the school-leaving age. The industry gives a certain amount of help on a local basis through scholarships ; and part-time day release is substantial.

The creative designer for publicity and the illustrator are provided for in senior full-time courses in the leading art schools.

#### *Qualification and Certification*

5. At the highest levels, the Ministry's Art Examinations cater for Typography, Lithography and Photo-Process, as well as for the illustrator.

At craft and intermediate levels, the City and Guilds have a new and comprehensive scheme for examinations in printing industry subjects, including book-binding, lithography, typography, and photo-engraving up to the standard of a full Technological Certificate.

#### *References*

The whole question of education and training for the printing industry is very fully dealt with in "Education for the Printing and Allied Trades" issued by H.M. Stationery Office in 1935. (2s. od.)

## 22. RUBBER INDUSTRY

### *Scope of Work and Grades of Personnel Employed*

1. The bulk of the output of the industry is motor and cycle tyres, but a great variety of other products are made and research is continually going on to develop new uses. The main grades of workers are managers, rubber technologists, chemists, physicists, foremen, chargehands, and process workers.

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### *Educational Facilities*

2. At the higher level there is a rubber department at the Northern Polytechnic (London) where graduate and post-graduate work can be done. There are also facilities at Newton Heath (Manchester).

Isolated students may work under the supervision of a Fellow of the Institution.

At the intermediate levels, students attend technical colleges for part-time courses with a view, ultimately, to an Associateship of the Institution of the Rubber Industry or a degree. Increased basic training of the younger process workers in science subjects is important.

3. Entrants who are able to attend pre-employment classes will have a basis for a good start in the industry. Schools of this nature with two- or three-year courses starting at age 13 are in existence at Newton Heath and the Northern Polytechnic.

For the numerous semi- and unskilled process workers, a general education with a science basis up to the age of 16, with more vocational work thereafter seems to be the most suitable education combined with part-time day release. Equipment and materials are in many cases provided by the industry, also scholarships for full-time students.

### *Qualification and Certification*

4. The Institution of the Rubber Industry grants Certificates of Licentiate, Associate, and Fellow. These three grades cover all skilled personnel in ascending order, Associateship being approximately of university degree standard.

Foremen and chargehands usually hold the Licentiateship of the Institution. Organization by the Institution is partly regionalized at London, Manchester and Birmingham. The Northern Polytechnic to some extent acts as a National Centre. A limited amount of research is carried on there.

Information can be obtained from the Institution of the Rubber Industry, 12, Whitehall, S.W.1.

## 23. SEED-CRUSHING, COMPOUND, AND PROVENDER MANUFACTURING INDUSTRIES

1. The Seed-Crushing Industry is engaged in the crushing of vegetable oil seeds and produces oils used for making such products as paints, varnishes, linoleum, soap, margarine. The solid residues are made into cattle cake and mixed cattle foods, known as *Compounds*. The Provender industry produces mixed cattle foods from the by-products of flour milling. The Seed-crushing industry



is largely localized at the ports of arrival of its raw materials ; the Provender industry is more widespread, and is sometimes associated with flour mills.

2. Apart from maintenance engineers and analysts who need the usual qualifications, the ranges of occupation are those normal in mechanized industry—managers, foremen, chargehands, store-keepers and general operatives. All need in differing degree a knowledge of the plant and materials they handle, superimposed on a sound basis of general scientific knowledge.

### *Certification*

A scheme is in preparation under the auspices of the City and Guilds Institute for intermediate, final and full technological certificates—in all, a four-year part-time course. Study will be carried on in evening classes, in part-time day classes and, for isolated students, by correspondence.

### *Reference*

For information apply to the Secretary, National Joint Industrial Council for the Seed-Crushing, Compound, and Provender Manufacturing Industries, 2, Watergate, London, E.C.4.

## 24. TEXTILE INDUSTRIES (SPINNING, MANUFACTURE, AND HOSIERY)

### *The Scope of the Industry*

1. The Textile Industries are among the major industries of the country. Even during the inter-war depression—1928 onwards—they provided more than £125 million per annum of the nation's exports, and employed nearly one million workers in the following main branches : Cotton, woollen and worsted, silk, hosiery manufacture, carpet manufacture, finishing.

2. In the past, the industry has been confined to the manufacture of clothing and furnishing fabrics from natural fibres, of which cotton, wool, and silk are the chief ; and has been situated mainly in Yorkshire and Lancashire—there may also be some further development of synthetic fibre manufacture in the Midlands and South.

In future, owing to the demand for textile products in other industries—for instance, for cotton fabrics as reinforcement for plastics for the engineering and aircraft industry—and to the increasing use of synthetic fibres, the nature of the technical training of the personnel engaged in the industry must be considerably wider and more scientific.

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### *Classification of the Personnel Engaged*

3. There are four main grades of persons engaged in the industry :

- (i) Managers and Research Workers.
- (ii) Skilled Technicians and Supervisors.
- (iii) Machine Minders.
- (iv) Labourers.

### *Educational Provision*

#### *The Present Position :*

4. (a) The main educational provision at present is for the skilled technicians in grade (ii), who are responsible for the efficient functioning of the production machinery. From these, in the main, the supervisors and managers are generally recruited.

(b) This provision is principally in part-time evening courses of study leading to City and Guilds Final Examinations and to National Certificates in Spinning, Weaving, and Hosiery manufacture.

(c) In some centres full-time courses are provided for students intending to enter the industry or who have reached a standard of general education about equal to School Certificate. These courses generally lead to City and Guilds Final Certificates.

(d) In Manchester and Leeds Universities the highest level of education for the industry is provided by means of three years' full-time training courses, leading to a degree in General Textile Technology either before entry into the industry, or after having followed part-time courses concurrently with industrial employment.

Those who have completed courses (c) and (d) usually become either supervisors, managers, or research workers.

Under part-time day-attendance schemes, some useful training is now being given in technical colleges to young operatives. The benefits of these schemes, however, are not sufficiently well appreciated by the industries, which tend to attach too much importance to vocational work. A closer working understanding between the technical college and industry might, in some instances, permit a simpler organization of part-time day attendance work in colleges. For operatives over 18 years of age there are few such schemes, and they are unlikely to show much expansion. There is a need for pre-employment courses, but they should be carefully related to the industrial intake.

#### *The Future Needs :*

5. A sound training on production machinery on the present lines, extended to embrace a more comprehensive study of automatic

machinery, will still be necessary for the greater number of technicians in grade (ii) ; but several other courses will be needed for smaller groups in grades (i) and (ii). For instance, the shortage of labour must lead to greater mechanization of the industry ; this will call for greater skill in the planning of production, and in the scientific principles of management. Again, the increasing use of synthetic fibres will call for a more highly scientific personnel. In general, higher technological education, co-ordinated with appropriate industrial and research training, is very necessary.

6. Grade (iii) do not need much technical training. The industry is likely, in future, to provide all that is necessary for these workers. Grade (iv) do not need any technical training.

### *Qualification and Certification*

7. At the highest level there will be a need for some university graduates, who after two years' industrial or other responsible work, may qualify for Associateship of the Textile Institute. This may also be attained by post-Higher National Certificate study over a period of two or more years.

National Certificates, Ordinary and Higher, awarded on successful completion of courses of study which include an adequate amount of science and mathematics, should be the aim of those seeking to be supervisors and production-planners.

The City and Guilds Final Certificates are suitable for many of the skilled technicians.

Craft courses suited to the needs of the rest of the technicians should be provided and certified by the Regional Examining Unions and the City and Guilds Institute.

### *References.*

#### *(a) Training and Qualifications :*

1. Technical College Prospectuses.
2. Publications of the Regional Advisory Council for Technical and Other Forms of Further Education for Manchester and District—"Education in Textiles." (Information from Director of Education, Education Offices, Deansgate, Manchester.)
3. Publications of the Yorkshire Council for Further Education, Education Offices, Calverley Street, Leeds, 1.
4. "Regulations for Election of Associates and Fellows of the Textile Institute." The Textile Institute, 16, St. Mary's Parsonage, Manchester, 3.

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5. Publications of the Recruitment and Training Department of the Cotton Board, 81, Fountain Street, Manchester—"Juvenile Training in the Cotton Industry," "A Job in Cotton," etc.

### (b) *Industrial Occupations, Statistics and Reports :*

1. "The Cotton Spinning Industry"—The Evershed Report, H.M.S.O., 1945.

2. "Report of the Cotton Board Committee to enquire into post-war Problems," 1944. The Cotton Board, Midland Bank Building, Spring Gardens, Manchester, 2.

3. "Report of the Cotton Textile Mission to the United States of America"—1944, H.M.S.O.

4. "Report of the Legislative Council on ways and means of improving the economic stability of the Cotton Textile Industry, September, 1943. United Textile Factory Workers' Association, Cloth Hall, Rochdale.

5. The Reports of the Board of Trade Working Parties for the Cotton and Hosiery Sections of the Industry are now available.

## 25. UPHOLSTERY

### I. *Scope*

1. Some 22,000 persons are employed in the industry, the proportion of men to women in workshops where such articles as chairs are made being about 5—1. This proportion is reversed in the retail shops, where the work consists largely in making curtains, loose covers, and other soft furnishings.

### II. *Organization*

2. The larger firms or units may have most or all of the following separate types of workrooms dealing with special lines :—

Curtains, covers, pelmets, blinds, carpets, mattresses, upholstery.

Smaller units dealing with only one or a few of these sections will thus be most successful if their work is maintained on a good level with trade standards.

3. In addition, a wide general training—as attempted in the pre-vocational schools—is desirable so that workers may be progressive and mobile ; otherwise there is a tendency towards too low a standard in selection of materials and suitability for the purpose in view. Any move to offset standardization of furniture



by means of individualist treatment in furnishing should lead to an increase in the number of smaller units ; moreover, as much of the first-rate craftsmanship in this and smaller trades has tended to disappear, individuality in design is much sought after.

### III. *Educational Facilities*

4. Before the war, upholstery was taught in art and technical schools at many centres. There should be scope now for the revival of these facilities and for their improvement ; one suggestion being the need for more parallel classes for men who are employed in work at the bench with women who are working as upholsterers. The work in factories at the present time tends to be over-simplified, and classes should serve to widen the outlook of the employees. Another type of class would be required for employees who are working on curtains and draperies where the men measure and the women stitch.

5. A suggestion has been received from the Amalgamated Union of Upholsterers and on behalf of the Working Party for the furniture industry, that there would be scope in Manchester, Newcastle, Nottingham and Long Eaton for teaching upholstery ; and that the position at Liverpool, Leeds, Birmingham, and Bristol might also be explored. There is also some support for making the study of traditional styles and of materials form part of the training. In the London district, Shoreditch and the Tottenham Court Road area would be good centres for the first and second types of classes respectively. There is no system of certification at present in force.

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## APPENDIX II ENGLAND AND WALES

### OCCUPATIONS OF POPULATION OF 14 YEARS OF AGE AND OVER

1931 CENSUS

<i>Occupation</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>	<i>Per 1,000 occupied in all industries</i>
1. Fishermen .. ..	26,945	80	27,025	1·4
2. Agriculture .. ..	1,116,573	55,683	1,172,256	62·5
3. Mining and Quarrying ..	966,210	2,561	968,771	51·5
4. Workers in Non-Metalliferous Products ..	23,242	1,205	24,447	1·3
5. Bricks, Pottery and Glass ..	72,076	25,418	97,494	5·2
6. Chemical Processes ..	39,596	4,224	43,820	2·4
7. Metal Workers .. ..	1,349,774	96,120	1,445,894	77·2
8. Workers in Precious Metals .. ..	23,321	11,511	34,832	1·9
9. Electrical Apparatus and Electricians .. ..	186,134	28,445	214,579	11·4
10. Watch and Clock and Scientific Instrument Makers .. ..	20,711	1,568	22,279	1·2
11. Workers in Skins and Leather and Leather Goods .. ..	46,841	24,049	70,890	3·8
12. Textile Workers .. ..	301,552	574,094	875,646	46·5
13. Makers of Textile Goods and Articles of Dress ..	276,738	542,809	819,547	43·6
14. Food, Drink and Tobacco ..	167,989	74,888	242,877	13·2
15. Workers in Wood and Furniture .. ..	500,632	19,734	520,366	27·8
16. Workers in Paper and Cardboard .. ..	37,427	63,994	101,421	5·4
17. Printers and Photographers .. ..	152,288	37,958	90,246	4·9
18. Builders and Contractors ..	692,123	775	692,898	37·0
19. Painters and Decorators ..	261,145	36,091	296,236	16·0
20. Workers in other Materials ..	29,666	19,071	48,737	2·7
21. Workers in Undefined Materials .. ..	66,836	14,801	81,637	4·5
22. Transport and Communication .. ..	1,565,846	68,899	1,634,745	87·0
23. Commerce, Finance and Insurance .. ..	1,466,587	604,833	2,071,420	110·0
24. Public Administration and Defence .. ..	290,202	2,906	293,108	15·6
25. Professional Occupations ..	356,726	389,359	746,085	40·0
26. Entertainment and Sport ..	91,654	22,369	114,023	6·4
27. Personal Service .. ..	462,935	1,926,978	2,389,913	127·0
28. Clerks, Draughtsmen and Typists .. ..	795,486	579,945	1,375,431	73·2
29. Warehousemen and Packers ..	254,963	155,784	410,747	22·0
30. Stationary Engine Drivers and Motor Attendants ..	157,107	409	157,516	8·4
31. Undefined Occupations ..	1,448,008	219,482	1,667,490	89·0
32. Retired, or not gainfully occupied .. ..	(1,385,526)	(10,804,851)	(12,190,377)	(645·0)
<b>TOTALS 1-31 Occupied</b>	<b>13,247,333</b>	<b>5,606,043</b>	<b>18,853,376</b>	<b>1,000</b>

## APPENDIX III

## NOTE ON THE LOCAL SCALE OF EMPLOYMENT OF YOUNG PERSONS IN AN OCCUPATION SUFFICIENT TO JUSTIFY THE PROVISION OF SEPARATE AND GRADED PART-TIME COURSES

1. If it is assumed (a) that crafts and occupations are being discussed which are relatively well-established, and (b) that special part-time vocational provision is necessary or desirable for these occupations (preferably of at least two years' duration), then *the important figure for the local education authority is the estimated annual recruitment.*

2. It may be further assumed that separate graded classes can be maintained *if there is an estimated yearly entry of 15 young people, and this figure may be taken as the limiting local figure.* If the figure is above 15 the position will be eased ; if it falls below 15, special measures may have to be adopted.

3. It might therefore be agreed that a "*small local occupation*" *is one which recruits less than 15 young people annually.*

4. Of the solutions to the educational problems which will arise in providing facilities for small occupations, the following seem to be the most obvious, though the matter clearly calls for further investigation :—

(a) the local grouping of similar crafts as far as possible ;  
(b) provision may be made on a regional basis to serve the needs of a group of authorities ;

(c) provision may be made on a national basis in very special cases. This will require attendance at short full-time courses, and call for residential facilities ;

(d) much of the general educational provision may be made locally, leaving the more specialized work to be dealt with as in (b) or (c).

## APPENDIX IV

## PREMISES : SCHEDULES OF ACCOMMODATION

The Schedules of Accommodation may be prepared as follows :—

Every room in each establishment should be named or classified and its area given in square feet. The rooms may be grouped in the schedule by type or by department. For the purposes of lay-out and equipment they may be further classified as (a) *instructional rooms*, including laboratories and workshops ; (b) *accessory rooms*,

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such as staff rooms and stores ; and (c) *general rooms*, such as halls library, administration rooms, refectories, common rooms, cloak-rooms. (Lavatories, corridors, and staircases will not normally be included in the lists.) Finally the "*total accommodation area*" in square feet should be given. This may be of value in preparing rough estimates of cost.

The following average figures may be used in calculating the sizes of the rooms :—

Room.	Area per student place in square feet
(a) Halls .. .. .	8 to 10
(b) Lecture theatres (close seating) ..	10 to 15
(c) Classrooms (desks or tables) ..	20 to 25
(d) Practical commerce rooms ..	25 to 30
(e) Drawing offices .. .. .	30 to 35
(f) Laboratories .. .. .	35 to 40
(g) Women's craft rooms .. .. .	35 to 40
(h) Cookery rooms .. .. .	40 to 50
(i) Studios and general craft rooms ..	40 to 50
(j) Workshops and practical rooms ..	50 to 60*
(k) Refectories and kitchens (according to number of "sittings") ..	7 to 9

\* In workshops where large items of construction may be built up and remain for some time, and where pieces of large movable equipment may be necessary, these figures may be raised up to 100 sq. ft.

## APPENDIX V

### LIGHTING, HEATING, AND VENTILATING STANDARDS

#### I.—LIGHTING

1. *Natural lighting* should be utilized as much as possible, but in view of the heavy evening use of further education buildings it is essential that thoroughly efficient artificial lighting should be installed. The lighting system in each room should be designed to supplement natural lighting in dull weather, as well as to give full artificial light at night. The necessity for external illumination of approaches and entrances to buildings used for further education should not be lost sight of ; and the added attraction given to buildings at night by good external lighting is of considerable importance.



2. It is considered that as a general rule the *minimum illumination value* in a room used for teaching should not be less than 10 foot-candles over the working area at a height of 2 ft. 9 ins. from the floor, with local lighting of a higher value where necessary. Details of the illumination values recommended for various rooms and other parts of the buildings are given in the publications listed below (para. 8).

3. There must be a *sufficient number of switches* in each room to control the lighting ; for example only part of a large room may be in use, or it may be necessary to create deeper shadow than is normally needed. In rooms where a lantern or a cinema is installed, it is convenient to be able to control all lights by a single switch, in addition to normal switching.

4. Considerable technical advances in *Fluorescent Lighting* have been made in recent years, and the use of it may be considered where appropriate ; although the cost of installation is at present higher than that of normal lighting.

As Fluorescent Lighting has a lower current consumption for a given value of illumination than filament lighting, it can often be used to improve the lighting of an existing building without increasing the total load required.

## II.—HEATING AND VENTILATION

5. Information on the standards to be aimed at in the heating and ventilation of further education buildings is given in the publications listed below (para. 8).

6. Special attention should be given to the ventilation of all kitchens, those used for class instruction especially. Unless there are windows on two sides of the room, natural ventilation will almost certainly be found inadequate when a class is occupied with practical cookery for 2-2½ hours.

7. While a comparatively low standard of heating may be adequate for workshops in industry, the special conditions of college workshops must also be considered. They may often be used for lectures, demonstrations, or other meetings when more warmth than usual will be needed to secure a reasonable degree of comfort.

## III. Notes.

8. The following publications will be found of value to those concerned with the design of buildings for Further Education :

- (i) S.R. & O. 1945 No. 345 "Regulations Prescribing Standards for School Premises. 1945." Published for the Ministry of Education by His Majesty's Stationery Office.

While these Regulations do not specifically concern buildings for Further Education, they prescribe minimum standards of lighting, heating, and ventilation which are considered desirable for all educational buildings.

(ii) "Memorandum on the Building Regulations of the Education Act, 1944." Published for the Ministry of Education by His Majesty's Stationery Office, 1945.

An explanatory Memorandum on the above Regulations.

(iii) "The Lighting of Buildings. Post-War Building Study No. 12." Published for the Ministry of Works by His Majesty's Stationery Office, 1944.

The Report discusses briefly the principles of lighting and vision and their influence on design, and explains the principles of measurement which are recommended for appraising lighting—both natural and artificial. Detailed and precise standards of natural and artificial lighting for schools (as well as for dwellings) are put forward.

(iv) "Electrical Installations. Post-War Building Study No. 11." Published for the Ministry of Works by His Majesty's Stationery Office, 1944.

The Report contains a section on Electricity in Schools ; much of the information contained in the other sections of the Report is applicable to buildings for Further Education.

(v) "Mechanical Installations. Post-War Building Study No. 9." Published for the Ministry of Works by His Majesty's Stationery Office, 1944.

The Report discusses the mechanical installations normally required in all large buildings, including schools.

(vi) "Technical College Buildings. Their Planning and Equipment." Published by the Association of Technical Institutions and The Association of Principals of Technical Institutions, 1935.

The Report includes some discussion of lighting, heating and ventilating systems for Technical Colleges, as well as notes and recommendations on planning and equipment in general.

9. It is recommended that local authorities should employ a qualified lighting or heating and ventilating engineer when carrying out a further education building scheme of any magnitude. He should be consulted at an early stage in the preparation of the sketch plans.

## APPENDIX VI

SPECIAL PROBLEMS OF FURNISHING AND EQUIPMENT  
IN "ADULT CLASSES"

1. Where provision is made in colleges of further education or similar establishments the question of equipment raises no problems peculiar to adult education. The need for laboratories, libraries, workshops, for example, is acknowledged; and adult education, like other forms of education, requires facilities for the use of the newer kinds of equipment, e.g. the film. Real difficulties arise, however, when classes and courses must be held in premises not equipped for use by adults or whose main purpose is not educational. A common defect is seating accommodation; and, wherever necessary, tables and chairs suitable for adults should be available. Classes in science, and some practical activities, require both accommodation and equipment which is normally only available on a satisfactory standard in places specially planned for such instruction. But the use of non-specialized premises must continue for reasons previously indicated; and there is no simple solution of the problem of providing within them adequate conditions for instruction.

2. Sometimes it may be possible to instal some equipment for permanent use, e.g. tables and chairs which can be stacked; water, gas, electric, and heating services; a stove for cookery demonstrations, a stage, and possibly even a 16 m.m. cinematograph. Some equipment can be conveniently provided for the duration of a course—a selection of books, a wireless set, a gramophone, and sewing machine. Again, some equipment can be packed in "travelling sets" to meet the detailed requirements of particular occasions—cookery utensils, first aid equipment, portable apparatus for scientific demonstration, specimens for practical work, music and language gramophone records, and illustrative films. Local circumstances must dictate the extent to which any or all of these expedients may be employed; but, if the best possible use is to be made of premises not specially equipped for educational work, careful selection of apparatus and materials is essential.

Possibly the most important point is to recognize the limits within which provision in this way can be made effective and interesting, and to keep within them. An essential requirement for the proper conduct of adult courses is a satisfactory provision of books; and this is true in respect of practical activities, as well as for courses in more obviously bookish subjects. In an adult institute or in a college of further education the resources of a library and facilities for quiet study should be at the disposal of the students,

who should also be helped and encouraged to make full use of the public library service and to build up their own private collection of books.

## APPENDIX VII

### YOUTH SERVICE : ACCOMMODATION REQUIREMENTS

1. For urban areas two schemes are suggested :—

(i) For a club of about 100 members offering some diversity of activity and open on at least four nights weekly, the following is probably the minimum accommodation :—

A club room (900 sq. ft.), one room (400 sq. ft.), a leader's room (150 sq. ft.), a kitchenette with hatch to club room (120 sq. ft.), a storage room, lavatories and cloakrooms, and a cycle store.

(ii) For an ampler provision offering a fuller club life each evening of the week to a larger membership, the following is suitable :—

A foyer, a hall (1,200 sq. ft.), four rooms (900 sq. ft., 600 sq. ft., and two at 400 sq. ft.), a kitchen (200 sq. ft.) a reading room and library (800 sq. ft.), two leader's rooms (150 sq. ft. each), office and control room (150 sq. ft.), an odd job workshop, generous storage space, lavatories and cloakrooms, and a cycle store.

2. For both schemes a gymnasium and handicrafts rooms (with storage), though not necessarily for the exclusive use of club members, should be readily accessible ; as well as a large hall, which for scheme (i) should be big enough for dances and drama, and for scheme (ii) of a size up to 3,000 sq. ft. for " functions," with a good stage, storage and dressing rooms. If the gymnasium and its changing rooms are not *en suite* with the club premises, some shower baths and, in some areas, bathrooms are necessary. Accommodation for changing should also be provided. Wherever possible a quiet room should be available for each sex ; although in some cases the library would serve this purpose.

3. The exact arrangement of provision on either of these scales is a matter affected by local circumstances, but three possibilities are considered :—

(i) The youth club may aim at being self-contained ; in which case, except when specially designed and built (unusual before the war and likely to be very rare for some years),



it will occupy an adapted building, an old house, a disused school, or army huts. In the immediate post-war years, one or other of these is a likely line of development. The kind of school building likely to become available is one where rooms open off a central hall or there is much inter-communication ; an arrangement which is often compact and lends itself to a friendly organization. Again, an old house, if structurally sound, may need only the addition of a hut (for a hall) to become a useful club. In either case, a good deal of the adaptation could be carried out by members. The drawbacks are likely to be that the gymnasium and handicrafts rooms are poor, or have to be some distance from the club.

(ii) Where the youth club forms a wing of a community centre, it is essential that its premises should form a separate entity with its distinct approach and entrance ; though the club might well be so disposed that hall, gymnasium, library, and similar rooms connect the club to, and divide it from, the rooms used by adults.

(iii) The youth club may be a more or less insulated wing of another educational establishment, *e.g.* secondary school. In this case also it is essential that the club should have its separate approach entrance and cloakroom accommodation. It is desirable that the lay-out should give the youth club member the impression that his club building is his club, distinct from other buildings. It should be possible to arrange the hall, gymnasium, and handicraft rooms *en suite* with the club wing, and to lock them off from the rest of the premises. It would be well also if the hall with its dressing rooms and cloak rooms could be readily isolated from all other buildings for the easier organization of public functions. Where a separate site has to be selected for a youth centre, it must be conveniently accessible from the homes of the young people.

4. In a small village, where the membership of the youth club cannot number more than twenty or thirty, there should be at least one fair-sized room ; either a separate structure, or attached to some building—(see preceding paragraph)—for the exclusive use of the youth group, with canteen facilities and adequate storage space. Young people should also have their proper share in the use of the village hall and any school buildings which are adaptable for this purpose.

5. Youth club amenities should include both radio and cinema, if young people are to be led to intelligent criticism and appreciation of them. When any handicraft rooms are used by more than one organization (*e.g.* a school and a youth club) it is essential to provide

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two or more sets of small tools and materials, and separate stores, so as to avoid friction, unless it is possible to have one instructor for the different organizations. Finally, if a youth club and a school are on the same site, it is undesirable to use the school kitchen or the domestic science room for club canteen purposes. It is better to have a small kitchen scullery from which drinks and snacks can be supplied, preferably opening off a common room with bar or serving hatch. Nothing elaborate is needed, for a canteen should be run by the members themselves.

## APPENDIX VIII

### YOUTH SERVICE, CLUBS, COMMUNITY CENTRES : ACTIVITIES

The following list makes no attempt at being exhaustive, but it will suggest the wide range of activities from which a selection may be made :—

#### 1. *Activities involving design and manipulative dexterity*

Woodwork, carving in wood or in stone, light metal work ; fretwork, clock and watch repairing ; boot and shoe repairing ; care and repair of electrical and mechanical appliances, motor and cycle maintenance, building wireless sets ; model-making— aeroplanes, railways, yachts, and models of rooms for interior decoration ; toy-making ; needlework and dressmaking ; embroidery, crochet and knitting ; weaving, fabric printing, rug-making ; leatherwork ; chair-seating, English willow basketry ; jewellery, simple silversmithing and pewter work ; drawing, painting, lino-cutting and printing ; lettering, picture-framing.

#### 2. *Activities involving Collecting and Classification*

Book, coin, stamp, curio and antique collecting ; wild flower collecting and botany, aquaria, nature specimen collecting, e.g. butterflies, insects, edible fungus. Collecting gramophone records, news cuttings and illustrations ; flint implements and other archæological specimens. Collecting reproductions and illustrations of pictures, architecture, and design in industry.

#### 3. *Activities useful in entertaining others*

Acting, miming, puppetry, cinematography, conjuring, parlour games, music, speech-making, costume-making, scene-painting, the art of making-up.

#### 4. *Activities concerned with the keeping of livestock*

Pigeon-breeding, bee-keeping, poultry-keeping, pig-keeping, rabbit-raising for food or fur ; tanning. In some country areas, stock-raising and maintenance ; stock judging ; growing and preserving food for stock.

#### 5. *Activities concerned with Gardening and Horticulture*

Flower- and vegetable-growing, fruit-growing, fruit and vegetable bottling, jam- and preserve-making, pickles and sauces, building and maintaining a greenhouse.

#### 6. *Activities involving study and research*

Archæology, astronomy, architecture, travel study, map-reading and map-making, local survey, study of land utilization, music (straight, swing, classical, learning to play an instrument or to sing, listening to music).

#### 7. *Activities useful at home*

Homecrafts—e.g. cooking, catering for families, sweet-making, laundering, valeting, mending and storing clothing ; simple household repairs (e.g. washers on taps, gas mantles, fitting an electric plug, simple wiring for light or bell, two-way switch fitting, repairing the carpet-sweeper, fitting new sash-cords, cutting and fitting glass, repairing broken pottery, french polishing, paper-hanging, distempering, painting, repairs to locks). Simple repairs of furniture, furnishing, making of curtains and cushions.

#### 8. *Activities connected with Nature Study*

Fishing, birds and bird-watching, wild flowers, geology, arboriculture, and weather lore.

#### 9. *Activities connected with physical fitness and personal hygiene*

Gymnastics (with or without apparatus), dancing (ballroom, country) ; swimming, cycling, canoeing, rowing and sailing, climbing and rambling, camping, athletics, boxing, cricket, football, tennis, hockey, netball, golf, billiards, badminton, fencing, rock-climbing, pot-holing. Care of clothes and footwear ; care of hair, hands, eyes, teeth and feet. Simple health hints.

## APPENDIX IX

## FURTHER EDUCATION

## ALPHABETICAL LIST OF CIRCULARS AND ADMINISTRATIVE MEMORANDA DEALING WITH MATTERS RELATED TO FURTHER EDUCATION

<i>Subject</i>	<i>Circular No.</i>	<i>Administrative Memorandum No.</i>	<i>Date</i>
Agriculture :			
Education for .. .. .	25	—	9 Mar., 1945
Relations between National Advisory Service and Local Education Authori- ties) .. .. .	123	—	28 Aug., 1946
Adult Education :			
(following demobilization) .. ..	57	—	9 July, 1945
Art :			
Examinations, reorganization of ..	4	—	15 Sept., 1944
Royal College of, Entrance and Scholar- ship Examination, 1947 .. ..	—	190	13 Nov., 1946
Awards			
and Scholarships .. .. .	26	—	13 Mar., 1945
Art and Science .. .. .	—	166	5 June, 1946
Major, and Teacher Training Regulations	—	191	15 Nov., 1946
University Students .. .. .	104	—	16 May, 1946
Blacksmiths' Apprentices :			
Training of .. .. .	62	—	7 Aug., 1945
Building :			
Apprenticeship and Training Council ..	—	65	7 June, 1945
Crafts .. .. .	—	91	2 Oct., 1945
Schools and Courses, Full-time, Staffing of .. .. .	—	4	1 Sept., 1944
Ditto .. .. .	—	13	28 Nov., 1944
Bursaries (State) .. .. .	46	—	15 May, 1945
Camps			
and Hostels .. .. .	—	131	6 Mar., 1946
National .. .. .	17	—	28 Nov., 1944
Ditto .. .. .	50	—	24 May, 1945
Catering Industry (Training for) .. ..	109	—	23 May, 1946
Community Centres .. .. .	20	—	20 Dec., 1944
County Colleges :			
Youth's Opportunity .. .. .	—	104	29 Oct., 1945
Day Instruction :			
Young part-time workers, attendance at	—	38	16 Mar., 1945
Disabled Persons :			
Training of .. .. .	68	—	12 Nov., 1945
Divisional Schemes :			
Educational administration .. ..	5	—	15 Sept., 1944
Domestic Front .. .. .	—	26	22 Feb., 1945
Education Act, 1944 .. .. .	1	—	15 Aug., 1944
Education Act, 1946 .. .. .	111	—	24 May, 1946



<i>Subject</i>	<i>Circular No.</i>	<i>Administrative Memorandum No.</i>	<i>Date</i>
Engineering :			
In the Royal Navy .. .. .	—	119	2 Jan., 1946
Cadetships (Army) .. .. .	—	158	21 June, 1946
Cadetship Regulations, 1946-7 .. .. .	—	184	25 Oct., 1946
Equipment :			
Camping (loan by War Office to Youth Organizations) .. .. .	—	154	15 May, 1946
Games .. .. .	—	159	31 May, 1946
Games and physical training .. .. .	—	72	6 July, 1945
Machine tools .. .. .	—	39	22 Mar., 1945
Miscellaneous (from M.A.P. stocks) .. .. .	—	117	7 Jan., 1946
Scientific instruments (from Government stocks) .. .. .	—	111	4 Dec., 1945
Surplus stores disposal .. .. .	72	—	30 Nov., 1945
Fuel Technology, Training in .. .. .	—	185	11 Oct., 1946
Further Education :			
Grant Regulations (work for 1945) .. .. .	—	89	5 Sept., 1945
Regional Organization .. .. .	87	—	20 Feb., 1946
Regulations (revised) .. .. .	61	—	9 Aug., 1945
Some immediate problems .. .. .	56	—	9 July, 1945
Homecraft .. .. .	117	—	5 July, 1946
Hospital and Sanatorium Patients :			
Education for .. .. .	15	—	15 Jan., 1945
Intensive Courses :			
Full-time vocational, for ex-Service per- sonnel .. .. .	—	153	13 May, 1946
Management :			
Institutional Management Association (exams.) .. .. .	—	152	7 May, 1946
Motor Trade (Retail and Repairing) :			
Courses for .. .. .	—	{ 21 121 175	{ 4 Jan., 1945 16 Jan., 1946 20 Aug., 1946
National Certificate, Courses for :			
Metallurgy .. .. .	—	{ 2 57 51	{ 31 Aug., 1944 15 May, 1945 18 May, 1945
Physics (Applied) .. .. .	—		
National Service :			
Deferment of part-time students .. .. .	—	3	31 Aug., 1944
Deferment and recruitment of full-time students for Secondary Schools and Universities .. .. .	—	155	18 May, 1946
Deferment and recruitment of students for Technical Colleges .. .. .	—	160	4 June, 1946
Do. do. .. .. .	—	198	8 Jan., 1947
National Schools :			
Their plan and purpose .. .. .	—	55	8 May, 1945
Nursery :			
Schools and Classes, staffing of .. .. .	—	103	26 Oct., 1945
Classes (Child Care Reserve) .. .. .	16	—	22 Nov., 1944
Students, course of training for .. .. .	—	120	9 Jan., 1946
Nursing Services :			
Education for .. .. .	105	—	14 May, 1946
Physical Education .. .. .	84	—	24 Jan., 1946
Recreation and Physical Training :			
Provision for .. .. .	51	—	15 June, 1945

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<i>Subject</i>	<i>Circular No.</i>	<i>Administrative Memorandum No.</i>	<i>Date</i>
Research:			
In Technical Colleges .. .. .	94	—	8 April, 1946
Sites:			
Acquisition of .. .. .	11	—	7 Nov., 1944
Approval of .. .. .	74	—	11 Dec., 1945
Special Subjects:			
Organizers of .. .. .	—	45	12 April, 1945
Teachers:			
Art and Music, Qualification of .. .. .	—	176	6 Sept., 1946
Emergency Training of .. .. .	77	—	13 Dec., 1945
Ditto .. .. .	106	—	22 May, 1946
Release to industry and commerce .. .. .	—	134	12 Mar., 1946
Salaries on entry, after emergency training .. .. .	—	167	5 July, 1946
Technical Training of .. .. .	55	—	5 July, 1945
Do. do. .. .. .	—	187	31 Oct., 1946
Training Colleges, recruitment and entry .. .. .	107	—	21 Oct., 1946
Training, organization of .. .. .	112	—	11 June, 1946
Training, revised Regulations for .. .. .	85	—	12 Feb., 1946
Technical, Commercial and Art Colleges:			
Status of .. .. .	98	—	10 April, 1946
Youth Service:			
Clubs, local (cessation of aid, Carnegie Trust) .. .. .	—	23	18 Jan., 1945
Courses of training .. .. .	{ 58 116	—	22 June, 1945
Organizations, local (maintenance and assistance grants) .. .. .	—	113	1 July, 1946
			31 Dec., 1945

## APPENDIX X

### BIBLIOGRAPHY

All Government Publications in this list for which post free prices are shown in brackets are obtainable from H.M. Stationery Office at any of the addresses on cover, page 4, or through any bookseller.

PART I.—Selected Ministry of Education Pamphlets, Reports, etc., relating to Further Education. Published by H.M. Stationery Office.

<i>Title</i>	<i>Price</i>
A Guide to the Educational System of England and Wales (1945) .. .. .	Pamphlet No. 2 1s. od. (1s. 2d.)
Youth's Opportunity—Further Education in County Colleges (1945) .. .. .	" " 3 1s. od. (1s. 2d.)
Building Crafts (Education for Industry and Commerce) (1945) .. .. .	" " 4 1s. od. (1s. 2d.)
Special Educational Treatment (1946) .. .. .	" " 5 9d. (10d.)
Art Education (1946) .. .. .	" " 6 2s. 6d. (2s. 8d.)
Mining Entrants (Education for Industry and Commerce) (1946) .. .. .	" " 7 6d. (7d.)
Report of the Percy Committee on Higher Technological Education (1945) .. .. .	" " 6d. (7d.)
Further Education Grant Regulations (1946) .. .. .	" " 2d. (3d.)
Further Education Grant Amending Regulations (1946) .. .. .	" " 1d. (2d.)

Arrangements and Conditions for the Award of  
National Certificates at Colleges or Schools for  
Further Education in England and Wales—

Chemistry .. .. .	(Rules 100)	2d. (3d.)
Building .. .. .	(Rules 101)	2d. (3d.)
Textiles .. .. .	(Rules 102)	1d. (2d.)
Endorsed Certificates in Commerce ..	(Rules 104)	1d. (2d.)
Naval Architecture .. .. .	(Rules 105)	1d. (2d.)
Mechanical Engineering .. .. .	(Rules 106)	1d. (2d.)
Production Engineering .. .. .	(Rules 106P)	1d. (2d.)
Civil Engineering .. .. .	(Rules 107)	1d. (2d.)
Metallurgy .. .. .	(Rules 111)	1d. (2d.)
Applied Physics .. .. .	(Rules 114)	1d. (2d.)
Electrical Engineering .. .. .	(Rules 127)	2d. (3d.)

The Training of the Architect (1943) .. Pamphlet No. 118 (Old Series) 9d. (10d.)

Report of the McNair Committee on the  
Recruitment and Training of Teachers and  
Youth Leaders (1944) .. .. . 2s. 6d. (2s. 3d.)

Teaching as a Career (England and Wales—  
mainly relating to the Emergency Training  
Scheme) .. .. . 3d. (4d.)

The Youth Service after the War (1943) .. .. . 6d. (7d.)

Purpose and Content of the Youth Service (1945) .. .. . 4d. (5d.)

The Post-War Youth Service in Wales (1945) .. .. . 4d. (5d.)

Youth in a City (1943) Pamphlet No. 117 (old series) 2d. (3d.)

Community Centres (1944) .. .. . 9d. (10d.)

Simple Health Hints—Notes for use of Youth  
Group Leaders (1943) .. .. . 3d. (4d.)

Sex Education in Schools and Youth Organiza-  
tions (1943) .. .. Pamphlet No. 119 (old series) 6d. (7d.)

Canteens in Youth Clubs (1945) .. .. . 3d. (4d.)

For other publications, see Government Publications  
Sectional List No. 2, Ministry of Education, obtain-  
able gratis from H.M. Stationery Office.

PART II—General list of Reports and Studies.

1 Occupational Group and Title	2 Author	3 Publisher	4 Price
AGRICULTURE (and related occupations)			
Higher Agricultural Educa- tion	(Regional Committee on Ministry of Agriculture and Fisheries ..	H.M.S.O.	1s. 3d. (1s. 5d.)
Dairy Education in Great Britain	Society of Dairy Technology	..	(Unpriced)
Milk Marketing Board ("Why not make your career with the Milk Marketing Board?")	Milk Marketing Board	..	(Unpriced)
BUILDING			
Building Apprenticeship and Training Council	First and Second Reports		(Unpriced)
Building Industry (Training for)	Report on ..	H.M.O.W.	(Unpriced)

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1 <i>Occupational Group and Title</i>	2 <i>Author</i>	3 <i>Publisher</i>	4 <i>Price</i>
<b>CHEMICAL</b> (Manufacture and Chemical Education ..	Processes) Report of Advisory Board	Royal Institute of Chemistry	(Unpriced)
Plastics (Educational Facilities)	Institute of the	Plastics Industry	(Unpriced)
<b>ENGINEERING</b>			
Civil Engineering as a Career	Institution of Civil Engineers (1946)		(Unpriced)
Educational Reconstruction	Institution of Mechanical Engineers (1945)		(Unpriced)
Education and Training for Engineers	Institution of Electrical Engineers (1945)		(Unpriced)
Training of Aeronautical Engineers	Royal Aeronautical Society (1945)		(Unpriced)
<b>MINING</b>			
Mining (Regulations for Examinations for award of Certificates of Competency, and of Surveyor's Certificates)	Board for Mining Examinations (various Statutory Rules and Orders, see Appendix I)	H.M.S.O.	(Various)
Training of Mining Entrants	Ministry of Fuel and Power H.M.S.O., S.R.O., 1945, No. 1217		6d. (7d.)
Mining Engineers (Training and qualification of)	Institution of Mining Engineers, Reports on		(Unpriced)
<b>OTHER OCCUPATIONS</b>			
Baking	Report by Education Committee, National Association of Bakers, Confectioners, and Caterers		6d.
Boot and Shoe Industry ..	Report by Board of Trade Working Party H.M.S.O.	3s. 6d.	(3s. 9d.)
Boot and Shoe Industry (Educational Policy for)	Report by National Union of Boot and Shoe Operatives		(Unpriced)
Catering Wages Commission Report	Section by Education Committee		6d.
Domestic (Private) Employment (Report on post-war organization)	Ministry of Labour and National Service .. H.M.S.O.		6d. (7d.)
Fishing Industry (Trawling)	Report by Technical Education Committee		(Unpriced)
Furniture .. .. .	Board of Trade Working Party Report .. .. .	3s. 6d. (3s. 9d.)	(Unpriced)
Glass Industry; Recruitment and Training of Juveniles for	Report by Education Committee, Glass Manufacturers' Federation		(Unpriced)
Hairdressing (Course for Apprentices)	Hairdressers' Council	Registration	3d.
Hairdressing Apprentices: Curriculum	Hairdressers' Council	Registration	(Unpriced)
Industry, Design and the Designer in	Board of Trade Council for Art and Industry .. H.M.S.O.		1s. (1s. 2d.)
Industry, Location of in Gt. Britain	P.E.P. Report .. .. .		13s.
Industry, Careers in ..	Advisory Council for Technical Education in S. Wales and Monmouthshire		(Unpriced)
Jewellery and Silverware ..	Board of Trade Working Party Report .. .. H.M.S.O.		3s. (3s. 3d.)
Mercantile Marine (Regulations for Examination of Masters and Mates)	Board of Trade .. H.M.S.O.		2s. (2s. 2d.)



1 <i>Occupational Group and Title</i>	2 <i>Author</i>	3 <i>Publisher</i>	4 <i>Price</i>
OTHER OCCUPATIONS— <i>Continued.</i>			
Mercantile Marine (Examinations for Engineers)	Board of Trade ..	H.M.S.O.	1s. (1s. 1d.)
Merchant Navy :			
Navigating Officers and Deck Ratings (Outline Plan of Training)	Merchant Navy Training Board		(Unpriced)
Engine-Room and Stokehold (Officers and Ratings) Report on Training	Merchant Navy Training Board		(Unpriced)
Metallurgists (Training, with special reference to the Iron and Steel Industries)	Iron and Steel Institute ..	..	2s. 6d.
Metallurgy (A Scientific career in industry)	Joint Committee on Metallurgical Education		(Unpriced)
Metal Trades, Light ; (Design in)	Board of Trade Council for Art and Industry	H.M.S.O.	1s. (1s. 2d.)
Nursing :			
Report of Athlone Committee		H.M.S.O.	1s. 6d.
Rules of General Nursing Council			(1s. 8d.)
Reconstruction Report	Royal College of Nursing	..	1s.
Nurses' Salaries Committee	1st and 2nd Reports and Supplement	H.M.S.O.	9d. (11d.)
Plastics (Educational Facilities for)	Institute of the Plastics Industry		(Unpriced)
Pottery Industry (Scheme for Apprenticeship)	National Joint Advisory Committee for Pottery Apprenticeship, Stoke-on-Trent		(Unpriced)
Pottery Industry .. ..	Board of Trade Working Party Report		1s. 3d.
			(1s. 5d.)
Textiles (Education in) ..	Manchester and District Regional Advisory Council		(Unpriced)
Clothing Industry :			
Further Education for	Yorkshire Council for Further Education		7d.
Reconstruction of.	Yorkshire Council for Further Education		1s. 1d.
Further Education for ..			
Cotton Industry (Juvenile Training)	The Cotton Board, Manchester ..		(Unpriced)
Cotton .. ..	Board of Trade Working Party Report		3s. 6d.
		H.M.S.O.	(3s. 10d.)
Hosiery .. ..	Board of Trade Working Party Report		3s. 6d.
		H.M.S.O.	(3s. 9d.)
Cotton Board Report (Committee of Inquiry into post-war problems)	The Cotton Board, Manchester ..		(Unpriced)
Cotton Spinning Industry	Evershed Report (1945)	H.M.S.O.	9d. (10d.)
Cotton Textile Mission to U.S.A. (Report)			
Cotton Textile Industry (Report on Economic Stability)	Textile Factory Workers' Association, Rochdale		(Unpriced)
Dress Trades, Design in ..	Board of Trade Council for Art and Industry	H.M.S.O.	6d. (7d.)
Textiles, Training in ..	Yorkshire Council for Further Education		(Unpriced)

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1 <i>Occupational Group and Title</i>	2 <i>Author</i>	3 <i>Publisher</i>	4 <i>Price</i>
<b>ADULT EDUCATION</b>			
Adult Education after the War	British Institute of Adult Education	Oxford University Press (1945)	4s. od.
Adult Education in Kent ..	Kent Education Committee	(1945)	3d.
Adult Education in Wales ..	(Survey of 1940)	University of Wales Press	On application
Cities and Centres for Adult Education	Educational Settlements Association (1943)		6d.
Adult Education in Practice	Association of Tutors in Adult Education	Macmillan	7s. 6d.
Drama in Further Education	Yorkshire Council for Further Education (1944)		2s. od.
Education for Living ..	Editorial, R.A.F. Quarterly, June, 1944		
Further Education for Men and Women	Nuffield College Report (1946)	Oxford University Press	1s. od.
Future of Adult Education ..	Association of Tutors in Adult Education (1944)	Leeds University	(Unpriced)
Guide to Courses of Further Education	Advisory Council for Technical Education in South Wales (1945)		9d.
Housing and Material Equipment for Adult Education	British Institute of Adult Education	Quarterly Journal (1945)	1s. 6d.
International Handbook of Adult Education	World Association for Adult Education (1929)		5s. od.
Museums and Galleries ..	Museums Association (1945)		6d.
Music in Further Education	Yorkshire Council for Further Education (1938)		9d.
People's Colleges for Residential Adult Education	Educational Settlements Association (1943)		6d.
Rural Areas, Further Education for	Advisory Council for Technical Education in South Wales		6d.
Workers' Education in Great Britain	Workers' Educational Association (1943)		6d.
Making a Fresh Start—(Adult Education in the Reconstruction Period)	Workers' Educational Association (1945)		6d.
W.E.A. Handbook ..	Workers' Educational Association		(Unpriced)
The Window to a Fuller Life	Editorial, R.A.F. Quarterly, Sep. 1945		
Visual Arts, The .. ..	A Survey ..	Oxford University Press, (1946)	10s. 6d.
The Guildhouse .. ..	British Institute for Adult Education (1945)		9d.
The Feilding Community Centres	New Zealand Council for Educational Research (1943)		4s. 6d.
The Countryman's College	The British Council (1945)		1s.
County of London Plan ..	London County Council (1944)		12s. 6d.
Need for Community Centres in London	London Council of Social Service (1944)		2d.
Dwellings, Site Planning and Layout	Ministry of Health (1944)		1s.
New Housing Estates and their Social Problems	National Council of Social Service (1945)		

1 <i>Occupational Group and Title</i>	2 <i>Author</i>	3 <i>Publisher</i>	4 <i>Price</i>
<b>ADULT EDUCATION—Continued.</b>			
Village Halls and Social Centres in the Countryside	National Council of Social Service (1945)		3s. 6d.
Y Colegan Sir (County Colleges)	University of Wales Press (1944)		3s. 6d.
Living in Communities ..	National Council of Social Service (1944)		(Unpriced)
Community Living and the Elementary School	National Education Association of U.S.A.		\$2
Scope and Practice of Adult Education	Adult Education Committee, 1930		1s. 6d.
Social Construction ..	"Education," 28th July, 1944 ..		3d.
The School and the Community	U.S. Office of Education		
Training and Conditions of Appointment	Society of Community Association Secretaries		(Unpriced)
Community Centres ..	(F. and G. Stephenson) Survey for British Council of Social Service		3s. 6d.
Housing Estates (Social and Educational Problems)	Year Book of Education, 1940 ..		35s.
Universities and Adult Education	British Association, 1943. . .		6d.
Miners' Welfare Looks Forward	Miners' Welfare Commission ..		6d.
Music in Youth Organization	University of Wales Council of Music		2s. 0d.
On behalf of the South Wales Collier Boy	South Wales Federation of Miner Boys' Clubs		(Unpriced)
Youth Leaders' Handbook	Birmingham Education Committee		1s. 6d.
The Boy in Post-War S. Wales	S. Wales Federation of Boys' Clubs		6d.
Educational Problem of the S. Wales Coalfield	Association of Assistant Masters in Secondary Schools		6d.
Youth Service in an English County	King George's Odhams Press Jubilee Trust		2s. 6d.
The Young Adult in S. Wales	S. Wales Council University of Social Service Wales Press		1s. 0d.
Woodwork from Waste ..	S. Wales Council of Social Service		6d.

See also the educational regulations of the various professional institutions, especially those dealing with engineering, mining and metallurgy, chemistry and physics, rubber and textiles; annual and periodical reports of the various Regional Councils, University Extra-Mural Departments and the Workers' Educational Association; and examination syllabuses of the Union of Lancashire and Cheshire Institutes, the City and Guilds of London Institute, the Union of Educational Institutions, the East Midland Educational Union, the Northern Counties Technical Examinations Council, and the Royal Society of Arts.

There are also many other handbooks, reports, and syllabuses published by various Bodies connected with Adult Education and

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Youth Service ; together with a large number of standard works on those subjects by individual authors, references to which may be obtained in most Public Libraries.

Of special interest to Wales are publications of the Advisory Council for Technical Education in South Wales and Monmouthshire, the South Wales and Monmouthshire Council of Social Service, the Welsh League of Youth, and other Educational and Social Organizations.

## PART III

### *Publications by Ministry of Labour and National Service*

The following publications of the Ministry of Labour and National Service may be referred to for details of other aspects of some of the occupations, education for which is dealt with in this pamphlet :

### *Careers for Men and Women Series*

These pamphlets deal in detail with methods of entry into and prospects of advancement in professions and callings for which education beyond the secondary school standard is normally necessary ; they are obtainable from H.M.S.O., price 3d. (4d.)

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Advertising .. ..	5	Architecture .. ..	4
Banking and Insurance ..	7	Brewing .. ..	8
Building Management ..	9	Catering .. ..	14
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